Carnegie-Mellon University
Software Engineering Institute

DTIC
SELECTED
OCT 2 7 1995
F

People
Capability Maturity Model SM

Bill Curtis

William E. Hefley

Sally Miller

September 1995
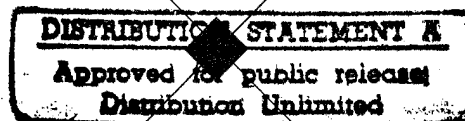
19951024 151

People Capability Maturity Model^{SM}

Bill Curtis
William E. Hefley
Sally Miller

Accesion For	
NTIS CRA&I	☑
DTIC TAB	☐
Unannounced	☐
Justification	
By	
Distribution /	
Availability Codes	
Dist	Avail and / or Special
A-1	

This report was prepared for the

SEI Joint Program Office
HQ ESC/ENS
5 Eglin Street
Hanscom AFB, MA 01731-2116

The ideas and findings in this report should not be construed as an official DoD position. It is published in the interest of scientific and technical information exchange.

Review and Approval

This report has been reviewed and is approved for publication.

FOR THE COMMANDER

Thomas R. Miller, Lt. Col, USAF
SEI Joint Program Office

This work is sponsored by the U. S. Department of Defense.

Copyright ©1994, 1995 by Carnegie Mellon University.

Capability Maturity Model, CMM, and IDEAL are service marks of Carnegie Mellon University.

Table of Contents

Table of Contents

The Key Process Areas for Level 3: Defined

The Key Process Areas for Level 4: Managed

The Key Process Areas for Level 5: Optimizing

Appendices

List of Figures

List of Figures

List of Tables

List of Tables

Acknowledgments

The People Capability Maturity Model[SM] (P-CMM[SM]) draws on the topics of capability maturity models, benchmark practices, and organizational improvement to increase an organization's capability to engineer software; and presents a documented roadmap for organizational improvement.

For his contributions and guidance as the leader of the Capability Maturity Models[SM] (CMM[SM]) project, his broad contributions to our ongoing discussions regarding the evolving drafts of the P-CMM, and his continuing support for the P-CMM efforts, we thank Mike Konrad. Watts Humphrey contributed to many discussions that led to the development and refinement of the model. Jim Over has shared his expertise and knowledge of the Personal Software Process (PSP) [Humphrey95a, 95b] to the development of the P-CMM. We thank them for their contributions. The extraordinary efforts of Mark Paulk in the development of the Capability Maturity Model for Software established a world-class standard and enabled the P-CMM to build on these efforts.

We acknowledge Ron Radice, Floyd Hollister, and Bill Peterson for their foresight in providing initial sponsorship for this work, as well as Miriam Browning, Cynthia Kendall (Office of the Assistant Secretary of Defense C^{3}I), LTG Otto Guenther (U.S. Army, DISC4) and David Borland (U.S. Army, DISC4) for providing the sponsorship from the U.S. Department of Defense (DoD) necessary to complete this work. We also thank Arlene Dukanauskas (U.S. Army, DISC4) and Joyce France (Office of the Assistant Secretary of Defense C^{3}I) for their continued and unfailing support and advice.

The SEI would like to thank the many people who have been involved in the development of the P-CMM . This effort could not have been accomplished without these many individuals lending their expertise to

---

Acknowledgments

refine the model. Special thanks go to the over 770 members of the P-CMM Correspondence Group who have contributed their time and effort to reviewing drafts of the P-CMM and who have provided insightful comments and recommendations.

We would especially like to thank the members of the P-CMM Advisory Board who have helped to guide our efforts. In addition to providing technical insights, they helped focus our effort and worked with us to evaluate and plan our actions to address the many comments received from industry and government reviewers. The current members of the P-CMM Advisory Board are David Borland (Dept. of the Army, Office of the Director of Information Systems for Command, Control, Communication, and Computers), Miriam F. Browning (National Academy of Public Administration), Ed Cotter (Digital Equipment Corporation), Barry A. Frew (Naval Postgraduate School), Paul Garber (Citicorp), Paul R. Gehrmann (IBM), Glenn Gienko (Motorola), Marlene Griffin-Bunnell (Eli Lilly & Co.), Watts Humphrey (Software Engineering Institute), James Jackson (Texas Instruments), Cynthia Kendall (Office of Secretary of Defense), Sally Matthews (General Services Administration), Jeffrey McHenry (Microsoft), Ronald A. Radice (Software Technology Transition), Roger T. Sobkowiak (Software People Concepts), and Ed Thompson (Advanced Research Projects Agency). Former members of the Advisory Board include Belkis Leong-Hong (Office of Secretary of Defense) and Austin Zullo (Citicorp).

We would like to thank especially those numerous individuals from the United States, Canada, Mexico, and India who actively participated in the December 1994 P-CMM National Workshop. We are also grateful to those individuals who participated as facilitators for the working groups at this workshop: Lisa Brownsword, Mike Dedolph, Betty Deimel, Jon Gross, Fred Hueber, Mike Konrad, and Judah Mogilensky.

We would also like to thank those who took time to provide substantial comments on the various drafts of the P-CMM. These individuals

Acknowledgments

Bill Pollak has contributed his wit and editorial expertise, as needed, and we are grateful for his assistance.

About This Document

How Is This Document Organized?

This document begins with an executive summary of the People Capability Maturity Model (P-CMM). The first chapter of the overview provides an introduction to the P-CMM and its underlying maturity framework. In the next three chapters of the overview are

- ❑ an overview of the P-CMM and its five maturity levels
- ❑ a description of how to apply the P-CMM
- ❑ a description of the structure of the P-CMM
- ❑ a description of ways to use and interpret the key practices

Following the overview, the key practices for the key process areas (KPAs) of the P-CMM are described. These chapters describe the key process areas found at each maturity level of the P-CMM and the key practices that, when collectively addressed, accomplish the goals of the key process area. For those who want to get a quick sense of the key practices, without the rigor that is needed in applying them, an abridgment of the key practices is provided in Appendix C.

The appendices contain the references cited in this document, a glossary of terms used in this document, an abridgment of the key practices, a mapping of key practices to the goals for each KPA, and the change history for this document.

Background

The concepts that grew to become the P-CMM were initially conceived by Bill Curtis at the SEI' s first CMM workshop in 1988. The concept was

published in *American Programmer* in August, 1990 [Curtis90]. Following the publication of the concept, Citicorp ran a successful pilot program during 1990 and 1991.

A project to develop the model was announced at the 1992 SEI Symposium. This work extends the management and organizational perspectives of the Capability Maturity Model for Software [Paulk93a; Paulk93b; Paulk95] to include the management of the people resources necessary for the development and maintenance of software systems. The SEI has been developing and refining the P-CMM since 1992.

Following initiation of the project, a P-CMM Advisory Board formed in July 1993. This advisory board consists of senior individuals with backgrounds in software engineering, information systems development and management, and human resources. Version 0.1 of the P-CMM was released for review by the advisory board in October, 1993. Subsequent to release of Version 0.1, the advisory board investigated best practices.

Strategic DoD sponsorship was obtained during 1994. The sponsors of this work are the

❑ Army Office of the Director of Information Systems for Command, Control, Communication, and Computers, Directorate of Army Information

❑ Office of the Assistant Secretary of Defense for Command, Control, Communication, and Intelligence, Deputy Assistant Secretary of Defense for Information Management.

P-CMM Draft Version 0.2 was developed based on the concepts described above and current best practices. It was widely distributed for review by the members of the P-CMM Advisory Board, P-CMM Correspondence

Group[1], and other interested reviewers, and was the subject of discussion at a National Workshop, held December 14-15, 1994, in Virginia.

Following the National Workshop, a focused two-day working meeting was held to address the structure and content of capability maturity models and the interrelationships between these models. In this meeting, the foci of our discussions were on people- and skills-related topics and issues, and how these people and skills topics map across capability maturity models.

P-CMM Draft Version 0.3 was developed based on extensive feedback (over 1400 comments) on P-CMM Version 0.2, as well as our continued efforts to identify the best benchmark practices in each of the key process areas. As with Version 0.2, P-CMM Version 0.3 was widely distributed for review by the members of the P-CMM Advisory Board, P-CMM Correspondence Group, and other interested reviewers. Over 1,000 copies of Draft Version 0.3 were distributed in hard copy, and several hundred copies were obtained electronically.

This document was released at the 1995 SEI Software Engineering Symposium, September 11-14, 1995, held in Pittsburgh, Pennsylvania.

---

[1]You can join the group by contacting Customer Relations at the Software Engineering Institute, Carnegie Mellon University, Pittsburgh, PA 15213-3890 (412/268-5800; fax: 412/268-5758; Internet: customer-relations@sei.cmu.edu).

How to Receive More Information

For further information regarding the P-CMM and its future associated products, including training on the P-CMM and how to perform P-CMM-based assessments, contact

> SEI Customer Relations
> Software Engineering Institute
> Carnegie Mellon University
> Pittsburgh, PA 15213-3890
> (412) 268-5800
> Internet: customer-relations@sei.cmu.edu

SEI technical reports are directly available from Research Access Inc. (RAI), the National Technical Information Service (NTIS), and the Defense Technical Information Center (DTIC). These documents can be obtained by contacting:

RAI: Research Access Inc.
800 Vinial Street
Pittsburgh, PA 15212
Telephone: (800) 685-6510
International: +1-412-321-2992
FAX: +1-412-321-2994
WWW: http://www.rai.com

NTIS: National Technical Information Service
U.S. Department of Commerce
Springfield, VA 22161-2103
Telephone: (703) 487-4600

DTIC: Defense Technical Information Center
ATTN: FDRA Cameron Station
Alexandria, VA 22304-6145
Telephone: (703) 274-7633

Additional information about the SEI, its efforts and publications are available using the World-Wide Web at

    http://www.sei.cmu.edu

Information about available P-CMM documents is available at

    ftp://ftp.sei.cmu.edu/pub/p-cmm/READ_ME.txt

SEI technical reports are also available via Internet. To obtain the P-CMM via anonymous FTP from a Unix system on Internet

    ftp ftp.sei.cmu.edu
    login: anonymous
    password: <your user id or any string>
    cd pub/p-cmm
    get READ_ME.txt
    get <files>
    quit

The file READ_ME.txt contains information on what files are available. Other SEI publications are available in a similar manner in the directory /pub/documents. The Capability Maturity Model for Software is available in a similar manner in the directory /pub/cmm.

Executive Overview

Need for the People Capability Maturity Model^{SM}

In order to improve their performance, organizations must focus on three interrelated components—people, process, and technology—shown in Figure EO.1. With the help of the Capability Maturity Model^{SM} for Software (CMM$^{SM)}$ [Paulk95], many software organizations have made cost-effective, lasting improvements in their software processes and practices [Herbsleb94]. Yet many of these organizations have discovered that their continued improvement requires significant changes in the way they manage, develop, and use their people for developing and maintaining software and information systems—changes that are not fully accounted for in the CMM. To date, improvement programs for software organizations have often emphasized process or technology, not people.

People

**High Quality
Products
and Services**

Process   **Technology**
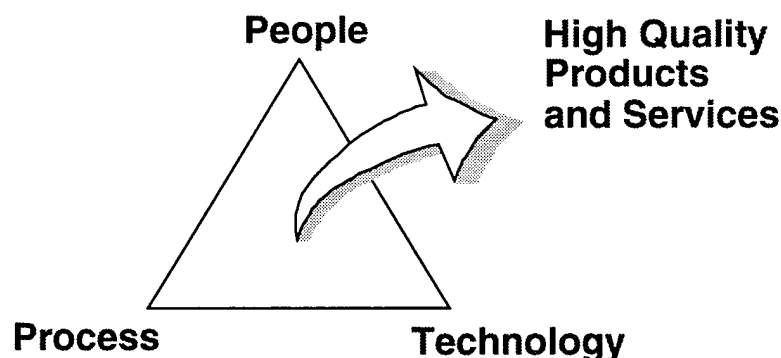
Figure EO.1 Three Components of Improvement Focus

---

^{SM} Capability Maturity Model and CMM are service marks of Carnegie Mellon University.

To provide guidance to organizations that want to improve the way they address these people-related issues, the SEI has developed the People Capability Maturity Model^{SM} (P-CMM^{SM}). The P-CMM is a maturity framework, patterned after the structure of the CMM, that focuses on continuously improving the management and development of the human assets of a software or information systems organization. The P-CMM provides guidance on how to continuously improve the ability of software organizations to attract, develop, motivate, organize, and retain the talent needed to steadily improve their software development capability. The strategic objectives of the P-CMM are to

❑ improve the capability of software organizations by increasing the capability of their workforce

❑ ensure that software development capability is an attribute of the organization rather than of a few individuals

❑ align the motivation of individuals with that of the organization

❑ retain human assets (i.e., people with critical knowledge and skills) within the organization

The P-CMM describes an evolutionary improvement path from ad hoc, inconsistently performed practices, to a mature, disciplined, and continuously improving development of the knowledge, skills, and motivation of the workforce. The P-CMM helps software organizations

❑ characterize the maturity of their workforce practices

❑ guide a program of continuous workforce development

❑ set priorities for immediate actions

❑ integrate workforce development with process improvement

❑ establish a culture of software engineering excellence

The P-CMM is designed to guide software organizations in selecting immediate improvement actions based on the current maturity of their workforce practices. The benefit of the P-CMM is in narrowing the scope of improvement activities to those practices that provide the next foundational layer for an organization's continued workforce

development. These practices have been chosen from industrial experience as those that have significant impact on individual, team, unit, and organizational performance. The P-CMM includes practices in such areas as

❏ work environment
❏ communication
❏ staffing
❏ managing performance
❏ training
❏ compensation
❏ competency development
❏ career development
❏ team-building
❏ culture development

Structure of the P-CMM

As organizations establish and improve their people management practices, they progress through five levels of maturity. Figure EO.2 depicts these five levels, each of which provides a layer in the foundation for the continuous improvement of an organization' s workforce practices. Each maturity level is composed of several *key process areas* (KPA) that identify clusters of related workforce practices. When performed collectively, the practices of a key process area achieve a set of goals considered important for enhancing workforce capability.

Achieving each maturity level in the P-CMM institutionalizes new capabilities as a result of an organizational improvement program, resulting in an overall increase in the workforce capability of the organization. Growth through the maturity levels creates fundamental changes in how people are managed and the culture in which they work.

Continuously improve
methods for developing
personal and
organizational
competence

Level 5—Optimizing

Continuous Workforce Innovation
Coaching
Personal Competency Development

Quantitatively manage
organizational growth
in workforce
capabilities and
establish
competency-
based teams

Level 4—Managed

Organizational Performance Alignment
Organizational Competency Management
Team-Based Practices
Team Building
Mentoring

Identify primary
competencies
and align
workforce
activities
with them

Level 3—Defined

Participatory Culture
Competency-Based Practices
Career Development
Competency Development
Workforce Planning
Knowledge and Skills Analysis

Instill basic
discipline
into
workforce
activities

Level 2—Repeatable

Compensation
Training
Performance Management
Staffing
Communication
Work Environment

Level 1—Initial

Figure EO.2   The Five Maturity Levels of the P-CMM

In maturing from the Initial to the Repeatable level, the organization installs the discipline of performing basic practices for managing its workforce. In maturing to the Defined level, these practices are tailored to enhance the particular knowledge, skills, and work methods that best support the organization' s business. The core competencies of the organization are identified, and workforce activities are aligned to support the development of these competencies. In maturing to the Managed level, the organization uses data to evaluate how effective its workforce processes are and to reduce variation in their execution. The organization quantitatively manages organizational growth in workforce capabilities and, when appropriate, establishes competency-based teams. In maturing to the Optimizing level, the organization looks continually for innovative ways to improve its overall talent. The organization is actively involved in applying and continuously improving methods for developing individual and organizational competence.

A number of improvement themes course through the P-CMM. These themes help organize an understanding of the structure of the model and the relationships among the key process areas within the P-CMM. As shown in Figure EO.3, the key process areas are mapped to four process categories. The four themes of these process categories are

❏ developing capabilities

❏ building teams and culture

❏ motivating and managing performance

❏ shaping the workforce

The P-CMM has been designed to be coupled with a CMM-based software process improvement program. However, it can be used on its own to guide improvements in the workforce practices of an organization. The P-CMM can be used to guide an assessment of the workforce practices of an organization, and the SEI is piloting an assessment method. However, the use of the P-CMM should been done in conjunction with those in an organization who have expertise in workforce practices.

Maturity Levels	Process Categories			
	Developing capabilities	Building teams and culture	Motivating and managing performance	Shaping the workforce
5 Optimizing	Coaching Personal Competency Development	Continuous Workforce Innovation		
4 Managed	Mentoring	Team Building	Organizational Performance Alignment Team-Based Practices	Organizational Competency Management
3 Defined	Competency Development Knowledge and Skills Analysis	Participatory Culture	Competency-Based Practices Career Development	Workforce Planning
2 Repeatable	Training Communication	Communication	Compensation Performance Management Work Environment	Staffing
1 Initial				

Figure EO.3   The Key Process Areas Assigned to Process Categories

People
Capability Maturity Model

Introduction to the People Capability Maturity Model (P-CMM)

This overview presents an introduction to the People Capability Maturity Model (P-CMM) and the reasons for developing such a model. It describes the concepts of a maturity framework and how this framework can be applied to developing the workforce capability of an organization. The structure of the P-CMM is described. In addition, advice for interpreting and using the P-CMM and its key practice statements is provided to help an organization apply the P-CMM in its setting.

Overview

1 Introduction

1.1 Motivation for Improving Software Development Talent

"The most important ingredient on this successful project was having smart people...Very little else matters in my opinion...The most important thing you do for a project is selecting the staff...Really the success of the software development organization is very, very much associated with its ability to recruit good people."

"The only rule I have in management is to ensure that I have good people–real good people–and that I grow good people, and that I provide an environment where good people can produce."

<p align="right">Two software vice presidents quoted in [Curtis88]</p>

"The central question in how to improve the software art centers, as it always has, on people."

<p align="right">[Brooks87]</p>

"Personnel attributes and human resource activities provide by far the largest source of opportunity for improving software development productivity."

<p align="right">[Boehm81]</p>

Knowledge is the raw material of software development, and it is software engineers who transform knowledge into software products. Although software tools can help record and manage knowledge, they do not create and apply it. The level of talent on a software project is often the strongest predictor of its results [Boehm81], and personnel shortfalls are one of the most severe project risks [Boehm88]. Therefore, improving technology

and process alone is not enough in the most knowledge-intense industry in history. Improving a software organization requires continual improvement of its people and of the conditions that empower their performance.

Software development is large-scale, integrated, intellectual work [Humphrey89]. The skill of developing software is the skill of managing intellectual complexity. Performance ranges among professional software engineers routinely exceed 20 to 1 [Curtis81, Sackman68, Valett89]. Software engineers differ markedly in the level of complexity they can handle [Basili83]. The folklore of software engineering is replete with remarkable feats by heroes, wizards, and gurus. Although the presence of an extraordinary individual on a project can have dramatic impact, there are not enough of these individuals to staff more than a handful of the projects in most organizations [Curtis88]. Software organizations can lament these circumstances, or they can take actions to improve them.

As the size of software systems continues to grow an order of magnitude each decade, the industry must change from a mystique of artistically creative individuals to a team-based profession that emphasizes continuous learning. Accordingly, software organizations must become centers of excellence that take talented individuals from universities and other sources and develop them into motivated and productive software engineering teams. Increasing the knowledge, skills, and performance of software developers is necessary to

❏ compete with lower priced talent in other countries

❏ satisfy the exponential explosion in the amount and complexity of software required by most current and future products

❏ increase the quality and reliability of software systems to levels achieved by hardware, especially in life- and business-critical applications

To motivate continuous improvement of the workforce, the organization must perceive its people as assets rather than as expense items. When members of the workforce are essentially interchangeable, organizations

focus more on managing workforce costs than on increasing workforce performance. It is tragic when this old labor relations model is carried over into high technology, because it was based on jobs that were never as knowledge intense as those in software development. With the level of performance differences cited for software engineers, individual and team skills become strategic competitive assets.

The benefit of better workforce practices has been demonstrated empirically in numerous studies [Labor93, Mavrinac95]. Companies with the best workforce practices have been shown to outperform other firms in growth of profits, sales, earnings, and dividends [Hansen89, Kravetz88]. These practices are usually considered to be integral to a total quality management (TQM) program, and are included as criteria in the Malcolm Baldridge National Quality Award [Commerce95]. Nevertheless, most software organizations have moved slowly on improving their workforce practices.

With the help of the Capability Maturity Model[SM] for Software (CMM[SM]) [Paulk95], many organizations have made improvements in their software processes and practices. These improvements have resulted in improved productivity, quality, and time to market [Herbsleb94]. Even so, many of these organizations have discovered that their continued improvement requires significant changes in the way they manage people, changes that are not fully accounted for in the CMM for Software. To date, most improvement programs for software organizations have emphasized process or technology, not people.

Despite the importance of talent, human resources and other workforce practices in many organizations are often ad hoc and inconsistent, and software managers are insufficiently trained in performing them. Consequently, managers often expect their human resources departments to be responsible for the administration of most people-related practices. Compounding the problem, these practices are often applied with little analysis of their impact. In many cases, even when software organizations

---

[SM] Capability Maturity Model and CMM are service marks of Carnegie Mellon University.

are aware of the problem and want to include people-related activities in their improvement programs, they don't know where or how to begin.

1.2 A Maturity Framework for Developing Human Talent

1.2.1 P-CMM Objectives

The People Capability Maturity Model^{SM} (P-CMM^{SM}) focuses on continuously developing the human assets of a software or information systems organization. The P-CMM provides guidance on how to develop an organization whose practices continuously improve the capability of its workforce. The motivation for the P-CMM is to radically improve the ability of software organizations to attract, develop, motivate, organize, and retain the talent needed to steadily improve their software development capability.

The strategic objectives of the P-CMM are to

❑ improve the capability of software organizations by increasing the capability of their workforce

❑ ensure that software development capability is an attribute of the organization rather than of a few individuals

❑ align the motivation of individuals with that of the organization

❑ retain human assets (i.e., people with critical knowledge and skills) within the organization

1.2.2 The Maturity Framework

The P-CMM is a maturity framework, patterned after the structure of the Capability Maturity Model for Software (CMM), that describes the key

elements of managing and developing an organization's workforce. It describes an evolutionary improvement path from ad hoc, inconsistently performed practices, to a mature, disciplined development of the knowledge, skills, and motivation of the workforce, just as the CMM describes an evolutionary improvement path for the software processes within an organization. The P-CMM helps software organizations

❑ characterize the maturity of their workforce practices

❑ guide a program of continuous workforce development

❑ set priorities for immediate actions

❑ integrate workforce development with process improvement

❑ establish a culture of software engineering excellence

The P-CMM is designed to guide software organizations in selecting high-priority improvement actions based on the current maturity of their workforce practices. The benefit of the P-CMM is in narrowing the scope of improvement activities to those practices that provide the next foundational layer for developing an organization's workforce. By concentrating on a focused set of practices and working aggressively to install them, organizations can steadily improve their workforce and make lasting gains in their performance and competitiveness.

The P-CMM guides an organization through a series of increasingly sophisticated practices and activities for developing its workforce. These practices have been chosen from industrial experience as those that have significant impact on individual, team, unit, and organizational performance. The P-CMM includes practices in such areas as

❑ work environment

· ❑ communication

❑ staffing

❑ managing performance

❑ training

❑ compensation

❑ competency development

❑ career development
❑ team building
❑ culture development

When installed, key practices in these areas improve the ability of organizations to attract, develop, motivate, and retain a talented workforce. These practices also help organizations align the performance of individuals and teams with that of units and the organization.

1.2.2.1 Background of the Maturity Framework

The maturity framework underlying the CMM for Software applies total quality management practices to software organizations to help them improve their capability to develop high-quality software on schedule and within budget. This framework guides software organizations through five stages in improving their capability. The conceptual structure of the CMM is based on quality management principles evolved by W. Edwards Deming [Deming86], Philip Crosby [Crosby79], Joseph Juran [Juran89], and others over the last 60 years.

The original concept for a maturity framework was developed by Watts Humphrey and his colleagues at IBM in the early 1980s. In his 27 years at IBM, Humphrey noticed that the quality of a software product was directly related to the quality of the process used to develop it. Observing the success of total quality management in other parts of industry, Humphrey wanted to install a Shewart-Deming cycle (plan-do-check-act) into a software organization as a way to continually improve its processes.

Humphrey realized that the Shewart-Deming cycle must be installed in stages as impediments to continuous improvement are systematically removed. The staged structure that underlies the maturity framework was first elaborated by Crosby in *Quality is Free* [Crosby79]. Crosby's quality management maturity grid describes five evolutionary stages in adopting quality practices in an organization. This framework was adapted to the

software process by Ron Radice and his colleagues working under the direction of Humphrey at IBM [Radice85].

Humphrey brought these concepts to the Software Engineering Institute (SEI) in 1986. In 1986 the SEI received a request from the U.S. Air Force to develop a method for assessing the capability of its software contractors. With assistance from Mitre, the SEI elaborated the process maturity framework [Humphrey88] and developed a questionnaire [Humphrey87] to aid in appraising maturity. The SEI intended the maturity questionnaire to provide a simple tool for identifying areas where an organization's software process needed improvement. In particular, it was designed to collect some initial data to guide the in-depth interviews during a software process assessment. Unfortunately, the maturity questionnaire was too often regarded as "the model" rather than as a vehicle for exploring process maturity issues.

The original formulation for the structure of the CMM in its current form was presented by Humphrey in *Managing the Software Process* [Humphrey89]. Through software process assessments, workshops, and extensive review, the SEI evolved the software process maturity framework into the Capability Maturity Model for Software (CMM) [Paulk95]. Version 1 was released for national review in August 1991, and the revised Version 1.1 [Paulk93a, 93b] was released in January 1993.

The CMM is widely used for guiding software process improvement programs both in the U.S. and abroad. Although originally adopted by aerospace firms, the CMM is now used in commercial software and information systems organizations. The CMM has been used successfully to improve software performance in companies such as Citicorp, Corning, GTE, Grumman, Hewlett-Packard, Hughes Aircraft, IBM, Motorola, Procase Corp., Raytheon, Rockwell, Schlumberger, and the U.S. Air Force [Billings94, Dion93, Goldenson95, Grady92, Herbsleb94, Humphrey91, Johnson94a, Johnson94b, Lipke92, Nidiffer95, Paulk95, Selfridge94, Sudlow94, Wohlwend93]. Recent empirical results point to an average return on investment in software process improvement of $5.70 saved for every $1 spent [Herbsleb94].

1.2.2.2 Principles Underlying the Maturity Framework

A fundamental premise underlying the maturity framework is that a practice cannot be improved if it cannot be repeated. In an organization's least mature state, systematic and repeated performance of practices is only sporadic. The Repeatable level of the CMM (Level 2) is primarily focused on helping software organizations remove the impediments that keep them from repeating successful software development or maintenance practices. The most common impediments are schedule or resource commitments that the software staff could not meet regardless of how sophisticated their skills or process are. Another particularly wicked impediment is uncontrolled requirements changes that devastate the original planning.

In a rush to satisfy unreasonable objectives, the project staff begin cutting corners on sound engineering practices and making mistakes that are not caught until it is much more time consuming and expensive to remove them. As a result, projects lose control of their schedule, costs, and product quality. When sound practices are sacrificed to schedule or other constraints, engineers have little chance to improve their performance or follow through effectively on innovative ideas. The primary objective at the Repeatable level is to instill a process discipline in the environment that ensures that the basic practices needed to stabilize the environment are performed on a regular and repeatable basis.

Having established an ability to make and protect achievable commitments, the organization can focus on transferring its best development or maintenance practices across the organization. Although successful practices are executed repeatably at the Repeatable maturity level, they may be performed quite differently by different people or in different groups. Some ways of performing these practices will prove more effective than others.

Capitalizing on processes that work best is the heart of the Defined level (Level 3). The organization identifies the design, testing, inspection,

management, configuration control, and other processes that seem to have worked best on different projects, and integrates them into an organization-wide process for development. This process is trained throughout the organization so that people have a common reference for performing their work. In using defined organization-wide processes, managers and technical staff benefit from lessons learned on earlier projects and do not have to reinvent successful methods.

Once the organization can execute its development processes consistently, it can use its process data to systematically eliminate the causes of wide variations in its performance. The objective of the Managed level (Level 4) is to set quantitative performance and quality targets and reduce the variation in process to stabilize the organization's capability in achieving these targets. During this attempt to reduce performance variation, statistical process control principles can be applied. However, their application, and even the relevant statistical methods, may differ from those used in manufacturing. Managers now use these detailed process data as their primary management tool.

At the Optimizing level (Level 5), the organization continues on its improvement path with a focus on continuous process improvement. The organization begins to identify technology and process innovations that can continually improve its performance and competitive posture. Causes of defects are systematically eliminated. The organization focuses on continual improvement of any factor that affects the achievement of its business goals.

The CMM guides organizations in steadily improving their capability for developing software. The capability of an organization to develop software is the range of results it ordinarily experiences when executing projects. Capability is improved by establishing a learning environment where the organization has quantitative feedback on its performance. In the abstract, the maturity framework builds an environment in which

❑ practices can be repeated

❑ best practices can be rapidly transferred across groups

❏ variations in performing best practices are reduced

❏ practices are continuously improved to enhance capability

This maturity framework should be applied only to practices that contribute directly to the business performance of an organization. These are the practices that increase the organization's capability to provide high-quality products and services efficiently. Since the knowledge, skills, and motivation of an organization's software development talent are crucial to its performance, the practices for managing their development are excellent candidates for improvement using the maturity framework. Thus, the P-CMM seeks to increase the capability of the workforce in the same way that the CMM increased the capability of the organization's software process.

1.2.3   A Family of Maturity Models

In laying a strategy for improving the practice of software engineering, the SEI focused on improvements in three areas. As depicted in Figure 1.1, these three areas—people, process, and technology—are the primary sources of leverage for improving the software engineering practice of an organization and its resulting products. The SEI has been conducting programs in each of these areas since the mid-1980s.
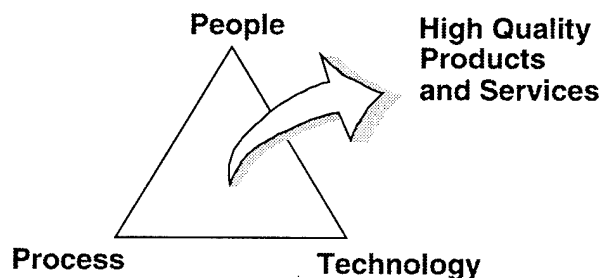
Figure 1.1 Three Components of Improvement Focus

The efforts of the SEI in software process have centered around using the CMM for Software as a guide for improving an organization's software process. The SEI has supplemented the use of the CMM in improvement programs by providing methods for

❑ appraising the actual practice of software engineering in organizations

❑ defining and representing software processes

❑ using quantitative methods for process management and improvement

❑ improving each developer's personal software process

The success of the CMM for Software generated an interest in applying maturity principles to other activities within an organization. The SEI is now exploring the application of maturity principles to each corner of the triangle in Figure 1.1. An obvious application of the maturity framework is to raise its application from the software component up to the level of systems engineering. The SEI has coordinated the development of a Systems Engineering Capability Maturity Model (SE-CMM) [Bate94]. This model translates the CMM to terms and processes that are relevant to the entire systems engineering process on a project.

As many defense contractors began to mature their development processes, the DoD realized that their acquisition practices were becoming a major impediment to further gains in productivity and quality. Accordingly, DoD has begun the development of an System Acquisition Capability Maturity Model (SA-CMM) to guide improvements in DoD acquisition practices. The combination of the CMM, SE-CMM, and SA-CMM should dramatically increase the effectiveness of the contractor-acquisition office partnership for delivering defense systems. These models will be just as beneficial in commercial industry as they are in the aerospace industry.

The SEI has also tentatively explored the application of maturity principles to software technology. The objective of such a model would be to evaluate software technologies on a continuum that stretches from ad hoc inconsistent methods to consistently performed, quantitatively-based

methods. Thus, software would be designed using methods that yield a quantitative characterization of the results of design decisions. The initial formulations of this model are promising, but it is still under exploration.

The P-CMM was developed to apply maturity principles to the development of the workforce. In applying these principles, we are implying that the development of the workforce is a process with practices that can be improved. Further we are implying that principles that have been traditionally used for the improvement of a product can also be applied to the improvement of people. Thus, the P-CMM rests on the premise that people have skills that can be measured and that organizations can continuously improve their processes for developing and organizing these skills.

The P-CMM is the foundation for systematically building a set of tools, including an assessment method, which are useful in understanding an organization's baseline capabilities to develop its workforce and in charting improvements in an organization's workforce practices. Although the P-CMM has been developed with the needs of the software engineering and information systems community in mind, the key practices for developing the workforce can be applied to almost any knowledge-intense job. In fact, most of these practices will apply to jobs throughout an organization. We use software examples frequently throughout this document, but this does not imply that these practices can only be applied to people directly involved with software. It may be possible for an organization to use the P-CMM and associated assessment instruments to address its capability for developing people in areas outside of software, and to integrate the resulting action plans into an overall plan for revitalizing the organization.

2   Overview of the People CMM

2.1   Definition of the P-CMM Maturity Levels

As a capability maturity model, the P-CMM guides organizations in establishing and improving their workforce practices through five evolutionary stages. Achieving each maturity level in the P-CMM institutionalizes new capabilities for developing the knowledge and skills of the workforce, resulting in an overall increase in the talent of the organization. Growth through the maturity levels creates fundamental changes in how people are developed and organized and in their working culture.

Figure 2.1 depicts the five maturity levels of the P-CMM. Each maturity level provides a layer in the foundation for continuous improvement of an organization's workforce practices. In maturing from the Initial to the Repeatable level, the organization installs the discipline of performing the basic practices. In maturing to the Defined level, these practices are tailored to enhance the particular knowledge, skills, and work methods that best support the organization's business. In maturing to the Managed level, the organization develops competency-based, high-performance teams and empirically evaluates how effectively its workforce practices are meeting objectives. In maturing to the Optimizing level, the organization looks continually for innovative ways to improve its workforce capability and to support individuals in their pursuit of professional excellence.

2.1.1   Level 1 - The Initial Level

At the Initial level, the performance of workforce activities is inconsistent. The organization typically provides forms for activities such as performance appraisals or position requisitions, but offers little guidance or training in conducting the activities supported by these forms. Typically managers have not been trained in performing most of their workforce responsibilities, so their ability to manage those who report to

them is based on previous experience and their personal "people skills." These organizations are not necessarily abusive or inconsiderate. Their problem is that they do not have the ability to systematically develop the competitive capability of their workforce.
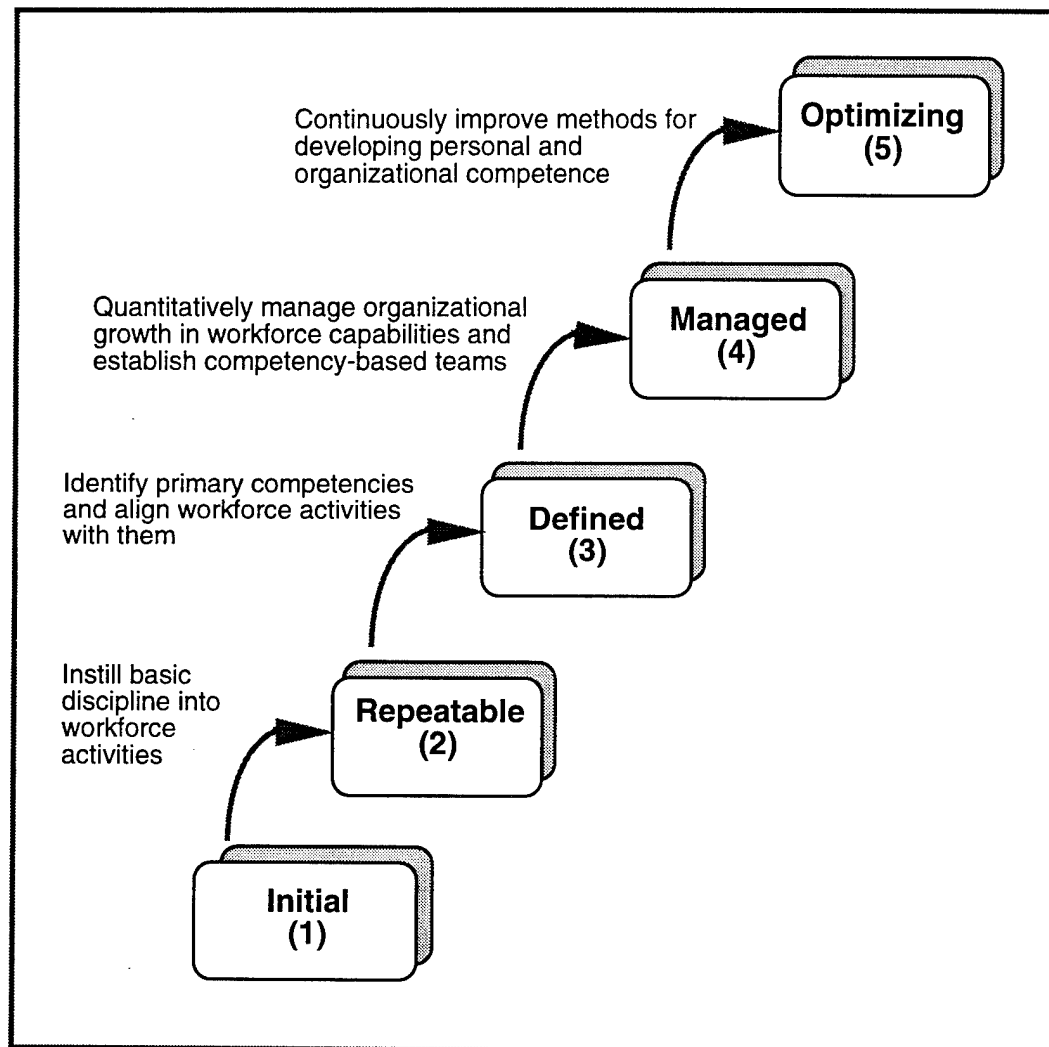
Figure 2.1   The Five Maturity Levels of the P-CMM

In the worst circumstances, managers in Level 1 organizations do not accept developing the members of their unit as a primary personal responsibility. They perform workforce activities such as interviewing job candidates or conducting performance appraisals with little preparation, often resulting in poor staffing decisions or disgruntled employees. The human resources department too often imports practices and applies them with little analysis of their effectiveness. Individuals in most Level 1 organizations do not take workforce practices seriously, since they do not believe the practices have much relation to their real work and level of contribution to the organization.

The workforce capability of a Level 1 organization is unknown, since there is little effort to measure or improve it. Individuals are motivated to pursue their own agendas, since there are few incentives in place to align their motivations with the business objectives of the organization. Turnover is high when people feel there are better working conditions or growth potential in another organization. Consequently, the level of knowledge and skills available in the organization does not grow over time because of the need to replace experienced and knowledgeable individuals who have left the organization.

2.1.2   Level 2 - The Repeatable Level

The primary objectives at the Repeatable level are to eliminate problems that keep people from being able to perform their work responsibilities effectively and to establish a foundation of workforce practices that can be continuously improved in developing the workforce. The most frequent problems that keep people from being able to perform effectively in low-maturity organizations include

❏ environmental distractions

❏ unclear performance objectives

❏ lack of relevant knowledge or skill

❏ poor communication

In maturing to the Repeatable level, an organization establishes policies that commit it to developing its people. A primary objective in achieving a repeatable capability is to establish a sense of responsibility and discipline in performing basic workforce practices. These practices ensure that the people in each unit will have the knowledge and skills required to perform their current assignment. When these practices are institutionalized, the organization has laid a foundation on which it can build improved methods and practices.

At the Repeatable level, those who have been assigned responsibility for performing workforce activities accept personal responsibility for ensuring that all workforce practices are implemented effectively. In doing so, they accept the growth and development of their staff as a primary responsibility of their position. When people take their workforce responsibilities seriously, they begin to develop repeatable methods for performing specific activities such as interviewing or establishing performance criteria. Individuals will notice greater consistency in the performance of workforce functions within their group, although different managers or groups may have individual variations in the specific methods they use.

The effort to implement improved workforce practices begins when executive management commits the organization to constantly improve the knowledge, skills, motivation, and performance of its workforce. The organization states that the continuous development of its workforce is a core value. The organization documents policies and develops basic workforce practices that the units will implement. Units develop plans for satisfying their workforce needs and responsibilities. These initial needs are in the areas of the work environment, communication, staffing, performance management, training, and compensation. Until these basic workforce practices become institutionalized, the organization will have difficulty adopting more sophisticated workforce practices.

2.1.3   Level 3 - The Defined Level

Organizations at the Repeatable level find that although they are performing basic workforce practices, there is inconsistency in how these practices are performed across units. The organization is not capitalizing on opportunities to standardize its best workforce practices, because it has not identified the common knowledge and skills needed across its units and the best practices to be used for developing them. The organization is motivated to achieve the Defined level in order to gain a strategic competitive advantage from its core competencies.

At the Defined level, the organization begins to adapt its workforce practices to the specific nature of its business. By analyzing the skills required by its workforce and the business functions they perform, the organization identifies the core competencies required to perform its business. The organization then adapts its workforce practices to develop the specific knowledge and skills that compose these core competencies. The organization identifies best practices in its own workforce activities or those of other organizations and tailors them as the basis for adapting its workforce practices.

The organization analyzes its business processes to determine the core competencies involved in its work and the knowledge and skills that constitute these competencies. The organization then develops strategic and near-term plans for developing these competencies across the organization. A program is defined for systematically developing core competencies, and individuals' career development strategies are planned to support competency development for each individual. The organization administers its workforce practices to develop and reward growth in its core competencies and to apply them to improve performance.

A common organizational culture can develop at the Defined level, because the organization becomes focused on developing and rewarding a set of core competencies. This culture places importance on growing the

organization's capability in its core competencies, and the entire workforce begins sharing responsibility for this growth. Such a culture is reinforced when workforce practices are adapted to encourage and reward growth in the organization's core competencies. This culture can be enhanced by establishing a participatory environment where individuals and groups are involved in decisions regarding their work.

The workforce capability of organizations at the Defined level is based on having a workforce that possesses the basic knowledge and skills to perform the core business functions of the organization. Knowledge and skills in the organization's core competencies are more evenly spread across the organization. The organization has improved its ability to predict the performance of its work activities based on knowing the level of knowledge and skills available in its workforce. Also, it has established a foundation on which continuous development of knowledge and skills can be built.

2.1.4   Level 4 - The Managed Level

Organizations at the Defined level have established the foundation for continuously improving their workforce. At the Managed level, the organization takes the first steps in capitalizing on managing its core competencies as a strategic advantage. It sets quantitative objectives for growth in core competencies and for the alignment of performance across the individual, team, unit, and organizational levels. These measures establish the quantitative foundation for evaluating trends in the capability of the organization's workforce. Further, it seeks to maximize the effectiveness of applying these competencies by developing teams that integrate complementary knowledge and skills.

At the Managed level, high-performance teams composed of people with complementary knowledge and skills are developed where conditions support their functioning. Team-building activities are performed to improve the effectiveness of these teams. When applied to teams,

workforce practices are tailored to support team development and performance.

Mentors are made available to both individuals and teams. Mentors use their experience to provide personal support, guidance, and some skill development. Mentors also provide another way to retain and disseminate lessons learned across the organization.

Organizational growth in each of the organization's core competencies is quantitatively managed. Data on the level of core competencies in the organization are analyzed to determine trends and capability. These competency trends are then used to evaluate the effectiveness of competency-related workforce practices. In addition, performance data are collected and analyzed for trends in the alignment of performance at the individual, team, unit, and organizational levels. Trends in the alignment of performance are used to evaluate the effectiveness of performance-related workforce practices. These trends are tracked against the objectives set in the strategic and near-term workforce plans.

The workforce capability of Level 4 organizations is predictable because the current capability of the workforce is known quantitatively. The organization has also developed a mechanism for deploying its competencies effectively through high-performance, competency-based teams. Future trends in workforce capability and performance can be predicted because the capability of the workforce practices to improve the knowledge and skills of the workforce is known quantitatively. This level of workforce capability provides the organization with an important predictor of trends in its business capability.

2.1.5 Level 5 - The Optimizing Level

At the Optimizing level, there is a continuous focus on improving individual competencies and finding innovative ways to improve workforce motivation and capability. The organization supports

individuals' effort toward continuous development of personal competencies. Coaches are provided to support further development of personal or team competencies.

Data on the effectiveness of workforce practices are used to identify needs for innovative workforce practices or technologies. Innovative practices and technologies are evaluated and the most promising are used in exploratory trials. Successful innovations are then transferred into use throughout the organization.

The workforce capability of Optimizing organizations is continuously improving because they are perpetually improving their workforce practices. Improvement occurs both by incremental advancements in their existing workforce practices and by adoption of innovative practices and methods that may have a dramatic impact. The culture created in an Optimizing organization is one in which all members of the workforce are striving to improve their own, their team's, and their unit's knowledge, skills, and motivation in order to improve the organization's overall performance. The workforce practices are honed to create a culture of performance excellence.

2.2 The Key Process Areas of the P-CMM

Figure 2.2 displays the key process areas for each of the five maturity levels in the P-CMM. Each *key process area* (KPA) identifies a cluster of related activities that, when performed collectively, achieve a set of goals considered important for enhancing workforce capability. Key process areas have been defined to reside at a single maturity level.

Key process areas identify the capabilities that must be institutionalized to achieve a maturity level. They describe the practices that an organization should implement to improve its workforce capability.

Optimizing (5)

Continuous Workforce Innovation
Coaching
Personal Competency Development

Managed (4)

Organizational Performance Alignment
Organizational Competency Management
Team-Based Practices
Team Building
Mentoring

Defined (3)

Participatory Culture
Competency-Based Practices
Career Development
Competency Development
Workforce Planning
Knowledge and Skills Analysis

Repeatable (2)

Compensation
Training
Performance Management
Staffing
Communication
Work Environment

Initial (1)

Figure 2.2   The Key Process Areas of the P-CMM
by Maturity Level

2.2.1 Key Process Areas at the Repeatable Level

The key process areas at the Repeatable level focus on establishing basic workforce practices and eliminating problems that hinder work performance. Descriptions of each of the six key process areas at Level 2 are presented below:

❑ **Work Environment** is designed to establish and maintain working conditions that allow individuals to concentrate on their tasks without unnecessary or inappropriate distractions. Work Environment involves ensuring that an appropriate work environment exists, that the work environment complies with all applicable laws and regulations, that improvements are made that will enhance performance, that impediments to performance are removed, and that distractions are minimized.

❑ **Communication** is designed to establish a social environment that supports effective interaction and to ensure that the workforce has the skills to share information and coordinate their activities efficiently. Communication involves establishing effective top-down and bottom-up communication mechanisms within the organization, and ensuring that all individuals have the necessary communications skills to perform their tasks, coordinate effectively, conduct meetings efficiently, and resolve problems.

❑ **Staffing** is designed to establish and use a formal process by which talent is recruited, selected, and transitioned into assignments in the organization. Recruiting involves identifying the knowledge and skill requirements for open positions, motivating all individuals to seek out qualified candidates, announcing the availability of positions to likely sources of candidates, and reviewing the effectiveness of recruiting efforts. Selection involves developing a list of qualified candidates, defining a selection strategy, identifying qualified candidates, thoroughly evaluating qualified candidates, and selecting the most qualified candidate. Transitioning involves attracting

selected candidates, orienting them to the organization, and ensuring their successful transition into their new positions.

❑ **Performance Management** is designed to establish objective criteria against which unit and individual performance can be measured, to provide performance feedback, and to enhance performance continuously. Performance Management involves establishing objective criteria for unit and individual performance, discussing performance regularly and identifying ways to enhance it, providing periodic feedback on performance, identifying development needs, and systematically addressing performance problems or rewarding extraordinary performance.

❑ **Training** is designed to ensure that all individuals have the skills required to perform their assignments. Training involves identifying the skills required to perform critical tasks, identifying training needs within each unit, and ensuring that needed training is received.

❑ **Compensation** is designed to provide all individuals with remuneration and benefits based on their contribution and value to the organization. Compensation includes developing a documented compensation strategy, developing a plan for administering compensation, and making periodic adjustments to compensation based on performance.

2.2.2 Key Process Areas at the Defined Level

The key process areas at the Defined level address organizational issues, as the organization tailors its defined workforce practices to the core competencies required by its business environment. Descriptions of each of the six key process areas for Level 3 are given below:

❏ **Knowledge and Skills Analysis** is designed to identify the knowledge and skills required to perform core business processes so that they may be developed and used as a basis for workforce practices. Knowledge and Skills Analysis involves identifying the business processes in which the organization must maintain competence, developing profiles of the knowledge and skills needed to perform these business functions, maintaining a knowledge and skills inventory, and identifying future knowledge and skill needs.

❏ **Workforce Planning** is designed to coordinate workforce activities with current and future business needs at both the organizational and unit levels. Workforce Planning involves developing a strategic workforce plan that sets organization-wide objectives for competency development and workforce activities, and developing near-term plans to guide the workforce activities of each unit.

❏ **Competency Development** is designed to constantly enhance the capability of the workforce to perform their assigned tasks and responsibilities. The core competencies identified in Knowledge and Skills Analysis and Workforce Planning provide the foundation for the organization's development and training program. Competency Development involves establishing training and other development programs in each of the organization's core competencies. Development activities are designed to raise the level of knowledge and skill in the organization's current and anticipated core competencies.

❏ **Career Development** is designed to ensure that all individuals are motivated and are provided opportunities to develop new skills that enhance their ability to achieve career objectives. Career Development includes discussing career options with each individual, developing a personal development plan, tracking progress against it, identifying training opportunities, and making assignments that enhance career objectives.

❑ **Competency-Based Practices** is designed to ensure that all workforce practices are based in part on developing the knowledge and skills of the workforce. Competency-Based Practices involves recruiting against knowledge and skill needs, basing selection methods on assessing the knowledge and skills of candidates, assessing job performance against the tasks and roles assigned to the position, and basing compensation at least in part on growth in knowledge and skills.

❑ **Participatory Culture** is designed to ensure a flow of information within the organization, to incorporate the knowledge of individuals into decision-making processes, and to gain their support for commitments. Establishing a participatory culture lays the foundation for building high-performance teams. Participatory Culture involves establishing effective communications among all levels of the organization, seeking input from individuals, involving individuals in making decisions and commitments, and communicating decisions to them.

2.2.3 Key Process Areas at the Managed Level

The key process areas at the Managed level focus on building competency-based teams and establishing a quantitative understanding of trends in the development of knowledge and skills and in the alignment of performance across different levels of the organization. Analyses of the five key process areas at this level are highly interdependent, as described below:

❑ **Mentoring** is designed to use the experience of the organization's workforce to provide personal support and guidance to other individuals or groups. This guidance can involve developing knowledge and skills, improving performance, handling difficult situations, and making career decisions. Mentoring involves setting objectives for a mentoring program, designing mentoring activities to

achieve these objectives, selecting and training appropriate mentors, assigning mentors to individuals or groups, establishing mentoring relationships, and evaluating the effectiveness of the mentoring program.

❑   **Team Building** is designed to capitalize on opportunities to create teams that maximize the integration of diverse knowledge and skills to perform business functions. Team Building involves matching potential team members to the knowledge and skill requirements of the team, training all new members in team skills, defining objectives for team performance, tailoring standard processes for use by the team, and periodically reviewing team performance.

❑   **Team-Based Practices** is designed to tailor the organization's workforce practices to support the development, motivation, and functioning of teams. Team-Based Practices involves ensuring that the work environment supports team functions, setting performance criteria and reviewing team performance, involving team members in performing workforce activities, and reflecting team criteria in individual compensation decisions.

❑   **Organizational Competency Management** is designed to increase the capability of the organization in its core competencies and to determine the effectiveness of its competency development activities in achieving specific competency growth goals. Organizational Competency Management involves setting measurable goals for growth in the organization's core competencies, defining and collecting data relevant to them, analyzing the impact of competency development activities on achieving these goals, and using the results to guide the application and improvement of competency development activities.

❑   **Organizational Performance Alignment** is designed to enhance alignment of performance results at the individual, team, unit, and

organizational levels with the appropriate goals and to quantitatively assess the effectiveness of workforce practices on achieving alignment. Organizational Performance Alignment involves setting measurable goals for aligning performance at the individual, team, unit, and organizational levels, defining the data and analyses, collecting the data, analyzing trends against objectives, acting on exceptional findings, analyzing the impact of people-related practices on performance alignment, and reporting results.

2.2.4   Key Process Areas at the Optimizing Level

The key process areas at the Optimizing level cover the issues that both the organization and individuals must address in implementing continuous improvements in their capability. Descriptions of each of the three key process areas for Level 5 are given below:

❏   **Personal Competency Development** is designed to provide a foundation for professional self development. Personal Competency Development consists of a voluntary program for continuously improving individual work processes. This program involves developing goals and plans for personal work activities, establishing and using defined personal processes, measuring and analyzing the effectiveness of these personal processes, and implementing improvements to them.

❏   **Coaching** is designed to provide expert assistance to enhance the performance of individuals or teams. Coaches engage in close relationships with individuals or teams to guide development of skills that improve performance. Coaching involves selecting appropriate coaches, analyzing data on personal or team performance, providing guidance on methods for improving performance, and evaluating progress toward goals for improving performance.

❑ **Continuous Workforce Innovation** is designed to identify and evaluate improved workforce practices and technologies, and implement the most promising ones throughout the organization. Continuous Workforce Innovation involves establishing a mechanism for proposing improvements in workforce activities, identifying needs for new practices and technologies, surveying and evaluating innovative practices and technologies, conducting exploratory trials of new practices and technologies, and implementing the most beneficial ones across the organization.

2.3 Themes in the P-CMM

By definition, key process areas are expressed at a single maturity level. There are, however, relationships between the key process areas that stretch across maturity levels. These relationships establish four themes that run through the P-CMM:

❑ developing capabilities

❑ building teams and culture

❑ motivating and managing performance

❑ shaping the workforce

The key process areas are mapped to the four themes in Figure 2.3. Each of these themes are represented as process categories in the figure, and the four themes are described in further detail below. These process categories help organize an understanding of the structure of the P-CMM and relationships of the key process areas within the P-CMM.

The existence of these themes implies that improvements in some areas need not be restricted to a single key process area, but can include an integrated set of practices from several process areas. Further, the implementation of key process areas at one level can be seen as establishing the basis for practices and capabilities at the next level.

Maturity Levels	Process Categories			
	Developing capabilities	Building teams and culture	Motivating and managing performance	Shaping the workforce
5 Optimizing	Coaching Personal Competency Development	Continuous Workforce Innovation		
4 Managed	Mentoring	Team Building	Organizational Performance Alignment Team-Based Practices	Organizational Competency Management
3 Defined	Competency Development Knowledge and Skills Analysis	Participatory Culture	Competency-Based Practices Career Development	Workforce Planning
2 Repeatable	Training Communication	Communication	Compensation Performance Management Work Environment	Staffing
1 Initial				

Figure 2.3   The Key Process Areas Assigned to Process Categories

Developing capabilities — The effort to develop the capabilities of the people in the organization begins at the Repeatable level with identifying the immediate training needs of people in each unit (Training). Oral and written communication capabilities are improved through training (Communication). At the Defined level the organization takes a more systematic look at the knowledge and skills required to perform the organization's business processes (Knowledge and Skills Analysis) and

identifies core competencies. The organization also establishes an organization-wide development program for these competencies (Competency Development). At the Managed level mentors are provided to guide individuals or teams in their development (Mentoring). Finally, at the Optimizing level, people can initiate an individual program to develop their competencies (Personal Competency Development), and coaches will be provided for those who want assistance (Coaching). The maturity trend in developing the workforce starts with identifying current training needs within a unit, graduates to the identification of core competencies that are developed by the organization, and then returns to individuals being able to establish their own program of professional development.

Building teams and culture — The effort to improve the ways in which people are organized and interact in the organization begins at the Repeatable level with a focus on improving both the formal and interpersonal communications within the organization (Communication). At the Defined level the organization develops a participatory culture by increasing the involvement of the workforce in decisions that affect their work (Participatory Culture). At the Managed level the organization begins building high-performance, competency-based teams and provides them with an appropriate level of autonomy (Team Building). At the Optimizing level the organization continuously searches for innovative ways to improve the culture or the functioning of teams (Continuous Workforce Innovation). The maturity trend in building teams and culture begins with establishing basic communication skills, grows to developing a participatory culture, and continues on into formal team-building and continuous improvement of team capabilities.

Motivating and managing performance — The focus on motivation and performance begins at the Repeatable level with establishing an environment that has adequate resources and does not impede or distract from job performance (Work Environment). Discussions about how to improve performance are held periodically, unacceptable performance is managed, and recognition is provided for outstanding performance (Performance Management). The basic compensation and benefits system is defined at this level, and its administration is partly tied to performance

(Compensation). At the Defined level the workforce practices established at the Repeatable level are adapted to motivate the development of core competencies (Competency-Based Practices). The organization also establishes a set of graduated career opportunities designed to motivate and reward people for developing additional skill (Career Development). At the Managed level the workforce practices are again adapted, this time for use with competency-based teams (Team-Based Practices). The organization also sets and tracks targets for the alignment of performance at the individual, team, unit, and organizational levels (Organizational Performance Alignment). At the Optimizing level the organization searches for innovative workforce practices and technologies that can further motivate or enhance competency development or work performance (Continuous Workforce Innovation). The maturity trend in motivating and managing performance begins with establishing basic performance management and compensation practices, then improves these practices through adapting them to competency development and team building, and then looks for constant sources of innovation.

Shaping the workforce — The effort to shape the workforce to meet business needs begins at the Repeatable level by establishing basic practices for recruiting, selecting among job candidates, and orienting people into new assignments (Staffing). At the Defined level the organization begins developing strategic and near-term plans for ensuring that it has the core competencies that it needs to meet current and future business demands (Workforce Planning). At the Managed level the organization sets and tracks targets for the development of knowledge and skill in each of its core competencies (Organizational Competency Management). At the Optimizing level the organization searches for innovative practices or technologies to help shape its workforce (Continuous Workforce Innovation). The maturity trend in shaping the workforce begins with establishing basic staffing practices, grows to developing plans for workforce development, sets and tracks objectives for competencies in the workforce, and then looks for constant sources of innovation.

3 Applying the People CMM

The P-CMM adapts the architecture and the maturity framework underlying the CMM for use with people-related improvement issues. The CMM focuses on helping organizations improve their software development processes. By adapting the maturity framework and the CMM architecture, activities guided by the P-CMM can be more easily integrated into existing software process improvement programs. This section discusses using the P-CMM to guide the people-related aspects of an improvement program.

The value of the P-CMM is in the way that organizations use it. The P-CMM can be applied by an organization in two primary ways:

❑ as a standard for assessing workforce practices

❑ as a guide in planning and implementing improvement activities

3.1   P-CMM-Based Assessments

The P-CMM provides a standard against which the workforce practices of an organization can be assessed. A P-CMM-based assessment may be conducted by itself, or jointly with some other assessment of the organization, such as an employee opinion assessment or software process assessment. The assessment team for a P-CMM-based assessment would include at a minimum someone skilled in conducting such assessments, someone who will be involved in making P-CMM-related improvements, and someone from the human resources function. A single person may fill more than one of these roles.

During the fall of 1995 a P-CMM-based assessment method will be developed, and trial use of this method is scheduled for late 1995 and into 1996. This assessment method is planned to be compliant with the CMM Appraisal Framework [Masters95], but it will be tailored so it consumes less time and resources than a traditional software process assessment or

CMM-based assessment. P-CMM-related training courses will also be available in 1996.

When a P-CMM-based assessment is conducted jointly with a software process assessment, data for the P-CMM-based assessment should be gathered separately, since the unit of study is not a project, as it is during a software process assessment. Because of its content, the P-CMM focuses on organizational units such as groups, sections, and departments, and how workforce practices are conducted within these units. Even so, a P-CMM-based assessment will use many of the same conventions as a software process assessment. For example, both are performed by a trained assessment team, collect some initial data using questionnaires, observe confidentiality of the information obtained, and interview people at different levels of the organization. The results of a P-CMM-based assessment might be presented at the same time as those of a process assessment, but they should presented as a separate analysis of the organization.

A P-CMM-based assessment will look at workforce practices as actually performed across the organization. The P-CMM assessment team determines whether a practice is implemented broadly across the organization and is institutionalized. The assessment team determines whether the goals and intent of each key process area have been implemented. However, they need not assess key process areas for maturity levels that are clearly beyond the current maturity of the organization.

The results of a P-CMM-based assessment are presented as a profile of the organization's strengths and weaknesses against the key process areas of the P-CMM. The maturity level of an organization is the lowest level for which all of the key process areas have been successfully implemented. The results of the assessment indicate the practices or process areas that the organization should consider when initiating an improvement program.

In the future, the P-CMM should help an organization compare the maturity of its workforce practices with the state of the practice across industry. Using the P-CMM as a benchmark will require that P-CMM-based assessments be submitted to a common repository, such as the Process Appraisal Information System (PAIS) at the SEI. These data will indicate trends in the industry in addition to providing a benchmark.

3.2 Using the P-CMM as a Guide for Improvement

3.2.1 Guidance Provided by the P-CMM

The P-CMM provides guidance for implementing practices in an organizational improvement program. There are two levels of guidance provided by the P-CMM: guidance on a strategy for developing the organization over time and guidance on practices that the organization can employ to solve explicit problems or shortcomings in its workforce practices.

In providing guidance, the P-CMM does not specify the explicit workforce practices to be implemented. Rather, it sets a framework for selecting and tailoring practices to the organization's history, culture, and environment. There are many professional sources that describe specific methods for workforce practices such as performance management, team building, and training.

The P-CMM does not provide guidance on how to implement the improvement program itself. The P-CMM is a roadmap for organizational growth and needs to be coupled with a model of how to implement an improvement program. A model for conducting improvement programs will be presented in Section 3.4.

3.2.2　Skipping Maturity Levels

The maturity levels in the P-CMM describe the characteristic practices of an organization at that maturity level. Each level forms a foundation on which an organization can build workforce practices effectively and efficiently at succeeding maturity levels. However, an organization can occasionally benefit from implementing processes described at a higher maturity level even though it has not satisfied all the key process areas at a lower maturity level.

The P-CMM should not be interpreted as prohibiting practices or activities from higher maturity levels that the organization finds beneficial. For example, team-related processes are not discussed in the P-CMM until the Managed level, yet organizations at the Initial level may have implemented self-managed teams for some activities, or may even have a long history of using mentors. Similarly, a less mature organization may be able to train its workforce in areas that would correspond to core competencies (Defined level), provide team-based incentives (Managed level), or use mentors (Managed level).

Improvement of personal competencies is the focus of an Optimizing key process area; however, understanding and improving individual work processes, through such means as the application of the Personal Software Process [Humphrey95a, 95b], can provide substantial individual benefits at lower maturity levels. These practices should be institutionalized throughout the organization when the organization achieves the Optimizing level.

If the organization sees the opportunity to benefit from a higher maturity practice and can support its performance, then the organization should implement it. However, the ability to implement practices from higher maturity levels does not imply that maturity levels can be skipped without risk. There is risk in implementing practices without the proper foundation being developed beneath them. For example, the team-building literature contains many examples of failed teams [Mohrman95].

These failures occurred because the foundation in communication skills and participatory culture had not been properly developed. Similarly, many innovative motivational practices fail to work effectively in an environment where there are no objective performance criteria or where basic performance management practices are performed inconsistently.

Skipping levels is counterproductive because each level forms a necessary foundation upon which the next level can be built. The P-CMM was designed to develop the supporting foundation needed to ensure that higher level practices could achieve their full impact on raising workforce capability. Processes without the proper foundation fail at the very point they are needed most – under stress – and they provide no basis for future improvement.

3.3 Locating a P-CMM-Based Improvement Program in the Organization

Organizations are initially inclined to house the coordination of a P-CMM-based improvement program in the human resources function. However, there is a strong belief that this is not the most effective home for such a program. The P-CMM Advisory Board, many of whom are human resource executives, was strong in its belief that P-CMM-based improvements not be perceived as a function of the human resources group. Rather, they strongly advised that people-related improvements be integrated with existing software process improvement programs.

The P-CMM Advisory Board recommended that a human resources professional be added to the software engineering process group (SEPG) to work on P-CMM-based improvements. Thus, the message carried to software executives is, "We have a program to address the improvement of your overall software operation. This program includes components that address process, technology, and people." The P-CMM part of the improvement program is where the people-related practices are addressed.

Many human resource professionals have reported a frustration in not being considered part of the mainstream of the organization. Accordingly, they are concerned that an improvement program coming from the human resources function will not be considered a critical part of the improvement effort. Accordingly, including P-CMM improvements as part of the overall improvement program that is housed in a development organization provides a vehicle for human resource professionals to partner in a mainstream effort to improve the business. Further, coordinating P-CMM-based improvements from the SEPG includes members of the workforce directly in making improvements that affect them. This involvement instills a greater sense of ownership of the improved practices.

3.4 Implementing a P-CMM-Based Improvement Program

The SEI has developed a model for improvement programs that is grounded in several years experience with and lessons learned from software process improvement programs. This model, presented in Figure 3.1, is a life cycle for organizing the phases of an improvement program. It is called the IDEAL^{SM} model after the first letters in each of its five phases: initiating, diagnosing, establishing, acting, and leveraging. In the following paragraphs, an approach to conducting a P-CMM-based improvement program will be presented through the phases of the IDEAL model.

---

^{SM} IDEAL is a service mark of Carnegie Mellon University.
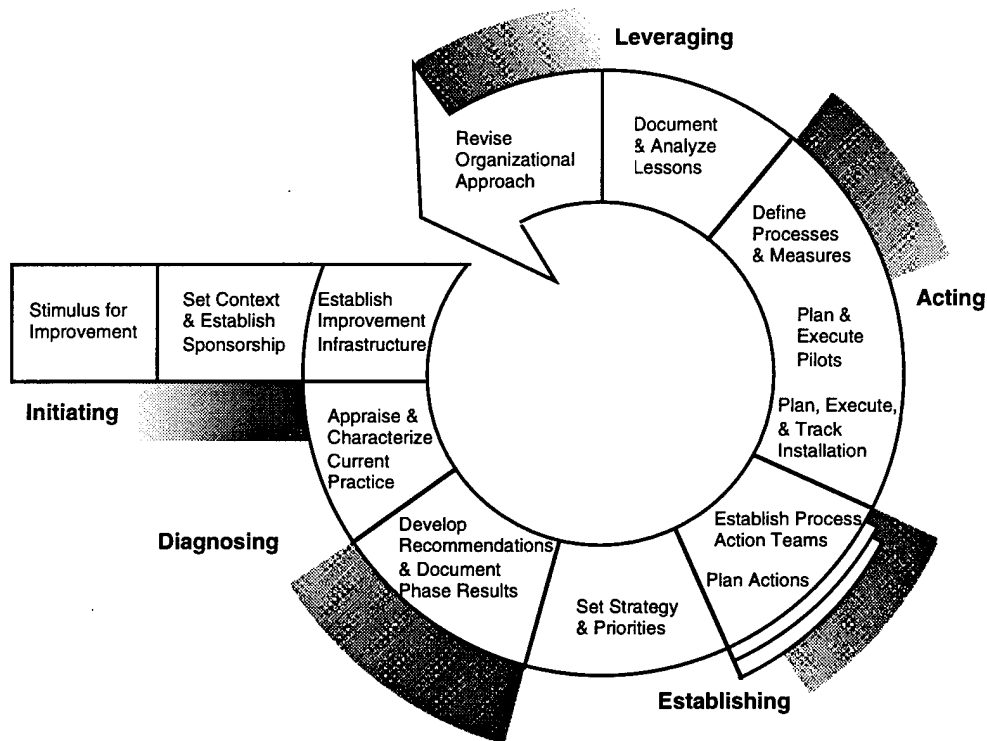
Figure 3.1 The IDEAL^{SM} Model

One of the clearest lessons that we have learned is that successful improvement programs must be run like any other project. That is, they must have plans, their progress must be tracked, and someone must be held accountable for their performance. The IDEAL model presents a proven life cycle that can be used to manage and guide an improvement program in the same way that a standard development life cycle is used with a software development project.

The first stage of IDEAL is the *Initiating* phase, wherein executive support is engaged and the infrastructure for improvement is organized. The most common reason for the failure of improvement programs is lack of executive support. The program should not be initiated until executive support is ensured. The effort begins with one or more briefings to executives. These briefings should include information about

❑ the benefits of P-CMM-based improvements such as reduced turnover and greater readiness to perform in fast-paced environments

❑ a description of the effort and schedule involved in the improvement program

❑ executive responsibilities under the P-CMM and in supporting the improvement program

Once executive support is ensured, the infrastructure for improvement should be organized. There are several groups that should be created to run the improvement program. The program should be run from an improvement group such as an SEPG or some other entity that reports to line management in the organization. If no such group exists, then one should be created explicitly for making people-related improvements. Such a group should include people with expertise in human resources and in software development. Such a cross-functional team has the best chance of making sensible improvements in the organization.

The improvement group should report to a Management Steering Committee that oversees and approves the improvement effort. This group should have representation both from line operations and from the human resources function. It should have immediate knowledge of how various people-related practices are being performed within the organization and a vision for improving the current practices. The steering group must also have authority to commit some of their own people to improvement activities.

Once executive support and an infrastructure for improvement have been established, the organization then prepares to enter the *Diagnostic* phase. During this phase, the organization conducts a P-CMM-based assessment and develops the findings and recommendations. P-CMM-based assessments have been discussed in Section 3.1.

With the assessment results in hand, the organization is ready to enter the *Establishing* phase. In this phase, the improvement team selects several of the most pressing problems for action and gets the Management Steering

Committee to approve this strategic selection. Since the organization can absorb only a limited amount of change at one time, only the most serious problems should be chosen for action.

An action team should then be organized to address each problem. The members of the action team should be chosen to ensure that it contains expertise both in the problem and in the method of solution. For instance, an action team addressing performance management in a software organization should have people who understand the criteria against which software performance should be measured, how best to work with software engineers in analyzing job performance, the methods of evaluating job performance, what kind of recognition and rewards motivate software engineers, and other related topics that are covered in the Performance Management key process area. Such a team will consist of people who know software and people who understand performance management methods.

One of the first duties of the team is to develop an action plan that addresses planned improvements in their problem area. Developing and tracking such an action plan is one of the distinguishing factors of successful improvement teams. To ensure that the action team stays on a successful trajectory, the team should be facilitated by someone from the core improvement group.

Once the action team has developed a basic plan for its activities, it launches into the *Acting* phase. The action team should identify best workforce practices that are already being used in the organization and build around them. Additional practices can be identified to implement a key process area completely. Any proposed workforce practices should be reviewed by the action team with those who are expected to implement them.

The practices that have been defined should usually be tested to ensure that they work as expected before being installed across the organization. After a successful trial has been conducted, then the practices can be

implemented across the organization and institutionalized. Institutionalization implies that there is enough infrastructure developed in the organization to ensure that the practices are continually practiced even with the inevitable movement of people to new responsibilities and the assignment of new people.

When the action teams have completed implementing practices in their assigned areas, then the organization can complete the IDEAL cycle with the *Leveraging* phase. In this phase, the action teams assess their lessons learned in developing and implementing their improvements, and the improvement group determines how the process of future improvement efforts can be enhanced. They then begin planning the next implementation of an IDEAL cycle to make the next round of improvements. Since executive support should remain strong if a successful implementation has been completed, the improvement team can begin planning the next P-CMM-based assessment.

IDEAL is a repeating cycle that establishes a continuous improvement capability within the organization. The IDEAL cycle is a version of the Shewart-Deming plan-do-check-act improvement cycle. As such it has much in common with other total quality management improvement activities. The use of IDEAL with workforce improvements implies that many of the same principles that have been used for improving other aspects of organizational life can be used in improving the development of the workforce.

3.5 Integrating Maturity-Based Improvement Programs

The P-CMM applies the essential elements of a capability maturity model to the workforce practices of the organization. Therefore, organizations that have some experience in applying the CMM to improve their software development processes will find the P-CMM to be compatible

with an improvement philosophy they have already adopted. Both the CMM and P-CMM can be used in an IDEAL improvement cycle.

Using the CMM and P-CMM together in an improvement program begs the question of whether the organization should synchronize its maturity levels on the two models. Maturity growth on one model does not require or restrict maturity growth on the other. However, maturity growth on either model probably assists in maturity growth on the other.

Both models begin at the Repeatable level by emphasizing the responsibility of project or unit managers for installing basic discipline in their environments. Creating this basic discipline using either model aids in creating the management attitudes that support growth in the other model. Basic management discipline will aid both the process of developing software or the process of developing the workforce.

At the Defined level, the analysis of knowledge and skills and the determination of core competencies requires an understanding of the work being performed. Thus, it is probably best that the organization have defined its software process before it begins defining the knowledge and skills required by the competencies involved in its specific software activities. This may be the area of dependency between the two models. Certainly the concepts of an organization-wide way of performing technical activities and of an organization's core competencies fit well together, each supporting development in the other. The P-CMM activities for defining and developing core competencies elaborate and extend the required training program activities described in the CMM.

At the Managed level, the data being generated by the software process provide an excellent source of information on whether the development of knowledge and skills is being effective, and where shortfalls might exist. That is, a mature software process will provide data that can be used in analyzing the trends that form the core of managing the organization's competency development and performance alignment. At the same time, the development of high-performance, competency-based teams instills

the kind of empowerment that has been observed in high maturity organizations [Billings94, Paulk95].

At the Optimizing level, both models emphasize establishing continuous improvement as an ordinary process. Both models also seek to engage individuals in making the continuous improvement of their own work a personal objective. Thus, at the Optimizing level the models begin to merge in their search for ways to improve performance continuously. At this level, the capability of the process will probably be difficult to distinguish from the capability of the workforce.

Since both the CMM and P-CMM share similar underlying philosophies about how to change and mature an organization, it should not be surprising that they support each other at each level of maturity. The challenge for an organization initiating an improvement program that has both CMM and P-CMM components is to integrate an improvement strategy that allows improvements guided by one model to help create an environment that supports improvements guided by the other model. At the same time, the organization must always balance the amount of change being undertaken so that the workforce is not inundated with change activities that interfere with conducting the organization's business. An organization that can balance these tensions and improvement strategies will find that it has a powerful competitive advantage in a well-defined process being executed by a well-prepared and motivated workforce.

4 Structure of the People CMM

With the exception of the Initial level (Level 1), each maturity level is composed of several key process areas. Each key process area is organized into five sections called common features. The common features specify the key practices that, when collectively addressed, accomplish the goals of the key process area. Some of these common features of the key process area implement the practices, while other common features establish the support needed to institutionalize their performance. The glossary in Appendix B contains definitions of terms, including those described in this section and others.

The relationships among the components of a maturity level are illustrated in Figure 4.1. The components of the P-CMM's structure include

Maturity levels

A maturity level is a well-defined evolutionary plateau that establishes a level of capacity for improving workforce capability. The five maturity levels provide the top-level structure of the P-CMM.

Workforce capability

Workforce capability describes the level of knowledge and skills in the organization's workforce and the ability of the workforce to apply them to improving business performance. Workforce capability contributes to an organization's performance and its ability to achieve business objectives. It is an important predictor of business performance.
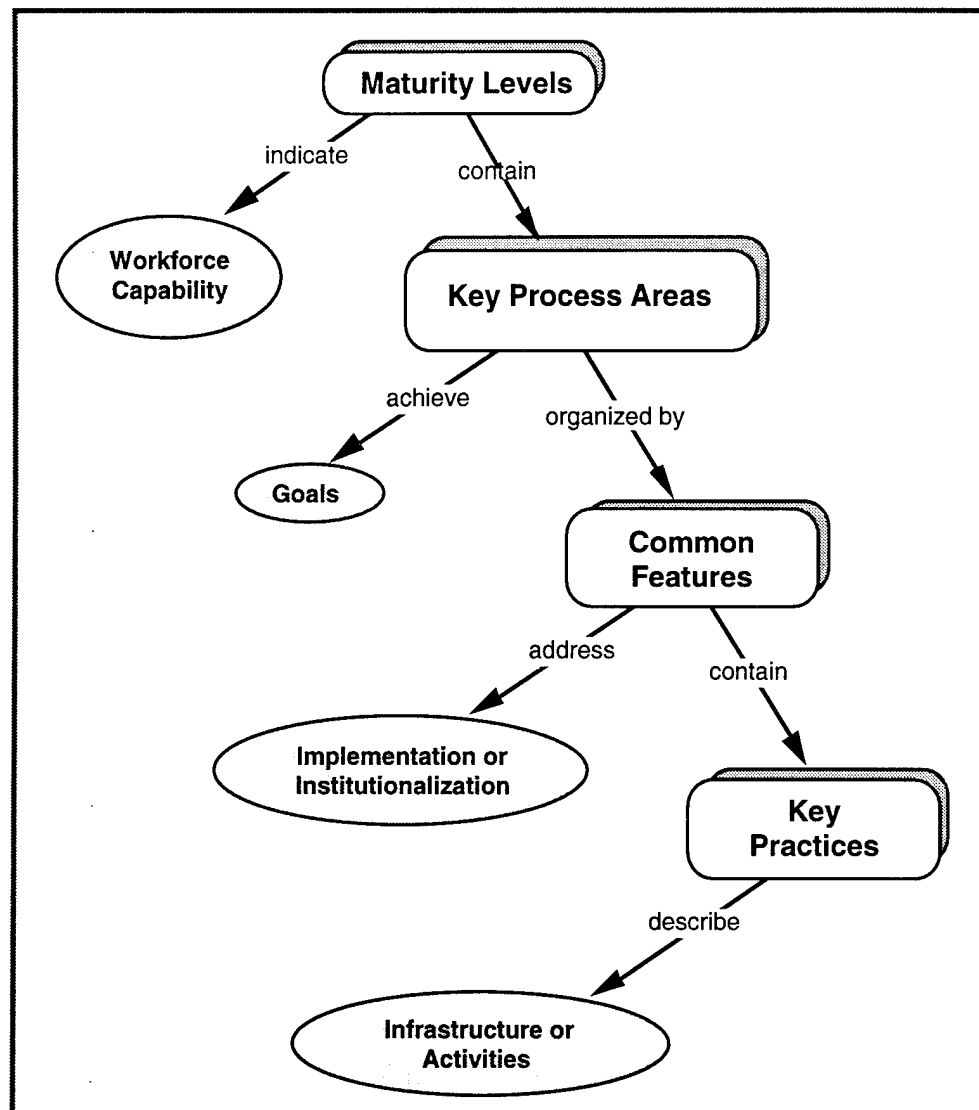
Figure 4.1 The P-CMM Structure

Key process areas

Each maturity level is composed of key process areas (KPAs). Each key process area contains a set of goals that, when satisfied, establish that key process area's ability to affect workforce capability. Key process areas have been defined to reside at a single maturity level. For example, one of the key process areas for Level 2 is Performance Management. The complete set of key process areas at each maturity level is shown in Figure 2.2.

Goals

The goals of a key process area summarize the states that must exist for that key process area to have been implemented in an effective and lasting way. The extent to which the goals have been accomplished is an indicator of how much capability the organization has established at that maturity level. The goals signify the scope, boundaries, and intent of each key process area. An example of a goal from the Performance Management key process area is: "Job performance is measured against objective criteria and documented."

Common features

The key practices of each key process area are divided into five clusters called common features. The common features include practices that implement and institutionalize a key process area. These five types of common features include

- Commitment to Perform
- Ability to Perform
- Activities Performed
- Measurement and Analysis
- Verifying Implementation

Common features (continued)	The Activities Performed common feature describes implementation activities. The other four common features help institutionalize these implementation practices in the organization's culture so that they are effective, repeatable, and lasting.
Key practices	Each key process area is composed from a set of key practices that, when implemented, help to satisfy the goals of that key process area. The key practices describe the elements of infrastructure and workforce practice that contribute most to the effective implementation and institutionalization of their key process area. For example, a key practice from the Performance Management key process area is: "Objective performance criteria are periodically documented for each individual."

4.1 Goals

The goals of a key process area summarize a state that exists when an organization has implemented the key practices of that area. Goal achievement can be used to determine whether an organization has effectively implemented a key process area. The goals signify the scope, boundaries, and intent of each key process area. In adapting the key practices of a key process area to a specific unit, success in satisfying the goals can be used to determine whether the adaptation is a reasonable rendering of the practices. Similarly, when assessing or evaluating alternative ways to implement a key process area, the goals can be used to determine if the alternatives satisfy the intent of the area.

4.2　Common Features

The key practices in each key process area are organized by a set of common features. The common features are attributes that indicate whether the implementation and institutionalization of a key process area is effective, repeatable, and lasting. The common features also group and order the key practices in a sequence helpful for organizations using them. The five common features are listed below:

Commitment to Perform	Commitment to Perform describes the actions the organization must take to ensure that the activities constituting a key process area are established and will endure. Commitment to Perform typically involves establishing organizational policies and executive management sponsorship.
Ability to Perform	Ability to Perform describes the preconditions that must exist in the unit or organization to implement key practices competently. Ability to Perform typically involves resources, organizational structures, and training.
Activities Performed	Activities Performed describe the roles and procedures necessary to implement the functions constituting a key process area. Activities Performed typically involve establishing plans and procedures, performing the work, tracking it, and taking corrective actions as necessary.
Measurement and Analysis	Measurement and Analysis describes the need to measure the key practices and analyze the measurements. Measurement and Analysis typically includes examples of measurements that could be taken to determine the status and effectiveness with which the Activities Performed have been implemented.

Verifying
Implementation

Verifying Implementation describes the steps to ensure that the activities are performed in compliance with the policies and procedures that have been established. Verification typically encompasses objective reviews and audits by responsible parties.

The *Activities Performed* key practices describe the processes that should be implemented to establish a workforce capability. Activities Performed are the largest category of key practices because they describe the actual implementation of the key process areas.

The other practices, taken as a whole, form the basis by which an organization can institutionalize the practices described in Activities Performed. Key practices under the other common features are equally important, however, for they address what must be done to support and institutionalize the key process areas. The *Commitment* and *Ability to Perform* key practices describe prerequisites for implementing each key process area. *Measurement and Analysis* and *Verifying Implementation* key practices determine if prerequisites have been met and processes have been institutionalized.

4.3 The Key Practices

Each key process area is described in terms of the key practices that contribute to satisfying its goals. The key practices describe the infrastructure and activities that contribute most to the effective implementation and institutionalization of the key process area.

Each key practice consists of a single sentence, often followed by a more detailed description. These key practices state the fundamental policies, procedures, and activities for the key process area. The key practices describe "what" is to be done, but they should not be interpreted as

mandating "how" the goals should be achieved. Alternative practices may accomplish the goals of a key process area. The key practices should be interpreted rationally to judge whether the goals of the key process area are effectively, although perhaps differently, achieved.

5 Interpreting the People CMM

5.1 Using the Key Practice Pages

The key practices are grouped by maturity level, and each maturity level is separated by a tab page. The tab page includes a description of the maturity level, a list of the key process areas for that maturity level, and the page number where each key process area begins.

Each key process area contains

- ❑ a brief description of the key process area
- ❑ the goals for the key process area
- ❑ the key practices

The key practices themselves are grouped into the five common features (Commitment to Perform, Ability to Perform, Activities Performed, Measurement and Analysis, and Verifying Implementation) and are presented in a hierarchical format, as shown in Figure 4.2, an example page of the key practice statements. The key practices include

Key practices	The key practices, also known as top-level key practices, state the fundamental policies, procedures, and activities for the key process area. They are identified in bold and are numbered within each common feature. For example, the first key practice in the common feature of Activities Performed is identified as Activity 1.
Subpractices	Subpractices, also known as subordinate key practices, are listed beneath the key practices and describe what one would expect to find implemented for the key practice. The subpractices can be used to help determine whether or not the key practices are implemented satisfactorily.

Supplementary information

Supplementary information is boxed following the key practices. The supplementary information includes examples, elaborations, and references to other key process areas.

Ability 5 — Adequate resources and funding are provided for recognition and reward activities.

Key practice

Subpractice

1. Experienced individuals who have expertise in recognition and reward programs are made available for guiding these activities.

2. Tools to support reward activities are made available.

Supplementary information

> Examples of tools include:
> - recognition and reward guidelines,
> - repositories of previously defined recognition and reward criteria,
> - examples of documentation for recognition and rewards,
> - space for recognition announcements in bulletins and other organizational media, and
> - standard forms for documenting recognition and reward activities.

3. Funding for recognition and reward activities is made available.

Ability 6 — All individuals responsible for performing recognition and reward activities are trained in the organization's recognition and reward practices.

Common feature → **Activities performed**

Activity 1 — Objective performance criteria are established for each unit.

Figure 5.1 Example of Key Practice Statements

5.2 Interpreting the Common Features

Within each common feature, certain phrases and conventions were used to provide continuity and consistency between the key process areas. The major phrases and conventions are described below, arranged by common feature.

5.2.1 Commitment to Perform

Policy Statements

Where policy statements are used, they generally refer to following a written, organizational policy for the practices of that key process area. This emphasizes the connection between organizational commitment and the activities performed in the units.

Leadership

In some key process areas, Commitment to Perform contains a statement that addresses the assignment of a leadership role (e.g., organizational role(s) assigned responsibility) or that describes particular sponsorship activities, which are necessary for the key process area to be successfully institutionalized.

5.2.2 Ability to Perform

Resources and Funding

Most key process areas contain a key practice that reflects the need for adequate resources and funding for the activities covered by the key process area. These resources and funding generally fall into five categories: adequate personnel, adequate funding, adequate time, access to special skills, and access to tools. Tools that may be of use in performing the

Resources and Funding (continued)

activities of the key process area are listed as examples. The word "funding" is used, rather than "budget," to emphasize that the resources used are more pertinent to actual practice than what was budgeted.

Training

The P-CMM's context for "training" is somewhat broader than might normally be considered when using the term. Training is provided to make an individual or team proficient through specialized instruction and practice. Training may include informal, as well as formal, vehicles for transferring knowledge and skills to the staff. While classroom training is commonly used by many organizations to build the knowledge and skills of their employees, the P-CMM also accommodates other techniques, such as facilitated video, computer-aided instruction, or formal mentoring and apprenticeship programs.

Orientation

In some key process areas, key practices that describe orientation are found. "Orientation" is used broadly to indicate less depth of knowledge or skills being transferred than would be expected through training. Orientation is an overview or introduction to a topic for those overseeing or working with the individuals responsible for performing in the topic area.

Prerequisite Items

Some key process areas contain key practices that express a need for prerequisite items; for example, an analysis of tasks and skills is a prerequisite for Competency Development. In keeping with the P-CMM philosophy of highlighting "key" practices, not all prerequisite items are listed for each key process area. The P-CMM cites only those that have been found to be particularly critical for implementing the key process area.

5.2.3 Activities Performed

Of all the common features, Activities Performed shows the greatest amount of structural variability, because the implementation activities for the key process area vary in level of detail, organizational focus (e.g., unit or organization), and need for planning and documentation. Some generalizations are highlighted below.

Plans

Plans require management commitment, both from the standpoint of creating them and ensuring that they are followed. The key practice for a plan requires that it be developed or revised and that the activities of the key process area be based on it.

According to a documented procedure

A documented procedure is usually needed so that the individuals responsible for a task or activity are able to perform it in a repeatable way. Documented procedures also ensure that others with general knowledge of the area will be able to learn and perform the task or activity in the same way. This is one aspect of institutionalizing a practice or process.

The formality and level of detail of a documented procedure can vary significantly, from a hand-written individual desk procedure to a formal standard operating procedure used throughout the organization. The formality and level of detail depends on who will perform the task or activity (e.g., individual or team), how often it is performed, the importance and intended use of the results, and the intended recipients of the results.

5.2.4 Measurement and Analysis

The Measurement and Analysis common feature describes basic measurement activities that are necessary to determine status related to the key practices in the Activities Performed common feature. Measurements that are inherently part of the activities of the key process area are contained under the Activities Performed common feature.

5.2.5 Verifying Implementation

The Verifying Implementation common feature generally contains key practices that relate to oversight by executive management, as well as specific verification activities that a responsible role(s) is expected to perform to verify that the key practices are being performed properly.

Executive management review on a periodic basis

The primary purpose of periodic reviews by executive management is to provide awareness of, and insight into, workforce activities at an appropriate level of abstraction and in a timely manner. The time between reviews should meet the needs of the organization and may be lengthy, as long as adequate mechanisms for reporting exceptions are available.

The scope and content of executive management reviews will depend on which executive is involved in the review. Reviews by the executive responsible for all human resource activities of an organization are expected to occur on a different schedule, and address different topics, than a review by the chief executive of the organization. Executive management reviews would also be expected to cover different topics, or similar topics at a higher level of abstraction, than unit-level reviews.

5.3 Using the Key Practices

5.3.1 Interpreting the Key Practices

Each key process area in the P-CMM lists a set of key practices that when implemented accomplish the goals outlined for that process area. The intention in defining key practices is not to require or espouse a specific method of performing workforce practices, organizational structure, separation of responsibilities, or management approach. Rather, the intention is to describe the essential elements of an effective program for developing and motivating talent. The key practices are intended to communicate principles that apply to a wide variety of organizations, are valid across a range of typical business activities, and will remain valid over time. Therefore, the approach is to describe the principles and leave implementation decisions up to each organization, according to its culture and the experiences of its staff.

In describing practices, the P-CMM seeks to delineate the "what" and not the "how." These practices describe the "whats" in broad terms so that organizations are left great leeway in creatively implementing the "hows." For example, the P-CMM might indicate that individual performance should be reviewed on a periodic basis. However, it would not specify how often, what dimensions should be reviewed, who provides input, or how a performance discussion should be performed. Decisions about how practices should be implemented are left up to the organization.

Although the practices described in the P-CMM are meant to be independent of any particular implementation, examples of specific practices are consistently used in elaborating the key practices to improve clarity. These examples typically list numerous ways a practice has been implemented or numerous issues an organization may wish to handle in implementing a practice. However, these examples are not intended to be prescriptive or exhaustive. They are merely included to provide additional assistance in interpreting a practice.

To provide workforce practices that apply to as wide a range of situations as possible, some of the key practices are intentionally stated to allow flexibility. Throughout the key practices, nonspecific phrases like "affected individuals," "as appropriate," and "as necessary" are used. The use of such nonspecific terms allows for the widest possible interpretation and application of the practices. In many cases, examples are provided for nonspecific terms, at least for the first use of the term. These phrases may have different meanings for two different organizations, for two units in a single organization, or for one unit at different points in its life cycle. Each unit or organization must interpret these nonspecific phrases for its specific situation.

5.3.2 Applying Professional Judgment

Professional judgment is critical in making informed use of the P-CMM. When applying the P-CMM in a particular context, a reasonable interpretation must be made of how these practices might be implemented. For instance, the P-CMM must be interpreted flexibly when applying it to smaller organizations or unusual business circumstances, so that unreasonable or needlessly bureaucratic activities are not implemented. For instance, small organizations may implement the key practices without the infrastructure needed by large organizations.

Professional judgment must be used when interpreting the key practices and how they contribute to the goals of a key process area. In general, the key process areas describe a fundamental set of behaviors that all organizations should exhibit, regardless of their size or products. The key practices in the P-CMM, however, must be interpreted in light of a unit's or organization's business environment and specific circumstances. This interpretation should be based on an informed knowledge of the P-CMM, the organization, its business environment, its projects, and its workforce. The goals of the key process areas provide a means for structuring this interpretation.

Applying professional judgment leads to the issue of whether the "goodness" of a particular workforce practice should be assessed. The P-CMM does not place "goodness" requirements on workforce practices, although it does establish minimal criteria for a "reasonable" practice in some situations. The objective of the P-CMM is to establish practices that are used and can act as a foundation for systematic improvement in knowledge, skills, and performance over time based on the organization's business needs. Once such practices are in place, the organization will adjust them to improve their effectiveness. These adjustments must be performed with an understanding of how the practices work in a particular business context, rather than by an externally imposed notion of "goodness."

Goodness is both a matter of interpretation and degree. Complying with a reasonable practice does not necessarily imply that the practice is efficient in achieving its purpose or that the unit is guaranteed good performance. There may be many factors influencing both organization and unit success whose impact overrides the benefit of a workforce practice. For example, a successful unit that builds a product that no one buys is a business failure, regardless of how well the workforce was trained. Accordingly, we discourage evaluation of a workforce practice for "goodness," since it is beyond the scope of most assessment teams to make that judgment.

What then are the criteria for a "reasonable" workforce practice? A reasonable practice is one that is effective in building workforce capability. For example, if a manager took a unit out for a beer after work on Fridays in order to implement a key practice for seeking individual's opinions on their working conditions under Communication, would that constitute a reasonable practice? It could certainly be documented and consistently followed. Some might argue that it is effective for loosening people up to talk about things that concern them. However, "Taking the unit out for a beer" would not be judged a reasonable practice for seeking input on working conditions because of its liability implications if a member of the unit were to have an accident on the way home. Since many people like to go straight home after work or do not drink, socializing after work may not guarantee that everyone has had an opportunity to express opinions

on working conditions. Professional judgment is necessary to make such distinctions about the reasonableness of a practice.

The P-CMM should be applied with an understanding of an organization's potential capabilities within the constraints that affect it. These considerations especially apply to large organizations that have centralized functions. Some organizations, for example, have a centralized staffing function that may partially prevent it from implementing some of the practices at the Repeatable level. On assessing this organization, it may appear to be at the Initial level. However, within their constraints, it may have implemented all the Repeatable practices that are under its authority.

5.4 Organizational Roles and Structure

Although the P-CMM attempts to remain independent of specific organizational structures and models, P-CMM practices consistently use terminology related to organizational structure and roles which may differ from that followed by any specific organization. The following sections describe the various concepts related to organizational roles and structures that are necessary for interpreting the key practices of the P-CMM.

5.4.1 Organizational Roles

A role is a cluster of defined responsibilities that may be assumed by one or more individuals. Various individuals are responsible for the workforce activities within an organization. These individuals include executive managers; managers at all levels, including team leaders, line managers, and matrix managers; the individuals within the organization themselves; and the human resources group.

The following descriptions of roles are frequently used in the key practices:

Executive manager

An executive manager fulfills a management role at a high enough level in an organization that the primary focus is the long-term vitality of the organization, rather than short-term project and contractual concerns and pressures. An executive manager provides and protects resources for long-term improvement of the workforce processes.

Executive management, as used in the P-CMM, can denote any manager who satisfies the above description, up to and including the head of the whole organization. As used in the key practices, the term "executive management" should be interpreted in the context of the key process area and the units and organization under consideration. The intent is to include specifically those executive managers who are needed to fulfill the leadership and oversight roles essential to achieving the goals of the key process area.

Manager

A manager fulfills a role that encompasses providing technical and administrative direction and control to individuals performing tasks or activities within the manager's area of responsibility. The traditional functions of a manager include planning, resourcing, organizing, directing, and controlling work within an area of responsibility.

Individuals,
workforce

Several terms are used in the P-CMM to denote the individuals who perform the various roles required to execute the business of the organization. The individuals are those who are responsible for accomplishing the business processes of the organization. The workforce is that collection of individuals that comprise the organization.

The term "individuals" as used in certain key practices is qualified and bounded by the context in which the term appears (e.g., "responsible individuals," or "the individual responsible for improving the work environment").

Human resources
group, member of
the human resources
group

The human resources group is the collection of individuals (both managers and staff) comprising the unit(s) within an organization that focuses on devising practical, effective ways to manage employer/employee relations. Their responsibility is directed toward, but not limited to, the recruiting, selection, hiring, and training of employees and the formulation of policies, procedures, and relations with employees or their representatives. The human resources group facilitates the development of improved workforce practices.

Generally, the concerns of the human resources group encompass Affirmative Action/EEO, benefits, classification and compensation, employment, labor relations, staff services, and training and development. The scope of the responsibilities of the human resources group depends largely on the size and type of business of the organization.

Human resources group, member of the human resources group (continued)

The human resources group also shares the responsibility for verification and measurement of the organization's workforce activities with management and serves in a quality assurance role for the organization's workforce processes.

Throughout an organization's process improvement efforts, the human resources group maintains these common administrative roles. However, some aspects of the role of the human resources group change as the organization and its staff change due to improvements in workforce capabilities. For example, as the organization's workforce capability increases, the human resources group shares responsibility for process and individual improvement with management and individual staff members.

There does not need to be a one-to-one correspondence between roles and individuals. One person could perform multiple roles, or each role could be performed by separate individuals. On a large project, many roles, especially those of management, would likely be filled by separate individuals.

5.4.2 Organizational Structure

The fundamental concepts of organization, unit, and team must be understood to properly interpret the key practices of the P-CMM. The following paragraphs define the use of these concepts in the P-CMM.

Organization	An *organization* is a unit within a company or other entity (e.g., government agency, branch of service, nonprofit entity). It has an identifiable executive manager(s) who has the responsibility for the operations, practices, and performance of the organization. Most frequently an organization is contained within a single site, but this is not always true. An organization is the entity in which an improvement program is applied.
Unit	A *unit* is a single defined organizational component (e.g., a department, section, group, project team) within an organization. Typically, there is an individual who is assigned responsibility for the activities of a unit. The term "unit" is used in the P-CMM to refer to any organizational component that is larger than a team, but smaller than the organization. Thus, smaller units (e.g., groups) can report into larger units (e.g., sections).
Group	A *group* is a collection of individuals who have responsibility for a set of tasks or activities. Groups are most frequently formed as a cluster of individuals organized into a structure that is convenient for managing [Plunkett91]. Although group members have functional relationships with each other, these relationships do not necessarily involve strong work interdependencies. A group is composed of more than an individual, but if it is not cross-functional, it constitutes nothing larger than the lowest level unit. Group composition could vary from several part-time individuals assigned from different departments, to individuals in the same unit assigned full time. Teams are groups that have undergone team-building processes.

Team

A *team* is a group of people who work closely together to achieve shared objectives, work together on tasks that are highly interdependent, and may exercise a level of autonomy in managing their activities in pursuit of those objectives. Teams have been prepared to who work closely together through formal team-building.

Other groups commonly referred to in the P-CMM are described below:

Software engineering process group

The *software engineering process group (SEPG)* [Humphrey89, Fowler90] is a group of specialists responsible for supporting a software improvement program. They facilitate the definition, maintenance, and improvement of the software process used by the organization.

When integrating workforce improvement activities with ongoing software process improvement activities of the organization, the SEPG may be augmented with members from the human resources or other groups.

Human resources group

The *human resources group* is the collection of individuals (both managers and staff) comprising the unit(s) within an organization that focuses on devising practical, effective ways to manage employer/employee relations. See Section 5.4.1 for a discussion of the roles that may influence the organizational structure of the human resources group.

Training group	The *training group* is the collection of individuals (both managers and staff) who are responsible for coordinating and arranging the training activities for a unit or an organization. This group typically prepares and conducts most of the training courses and coordinates use of other training vehicles.

The P-CMM does not specify any organizational structure. It uses an organization's existing structure (teams, if they exist; groups; units; and individuals) and provides a framework for the organization to improve its capability to make use of and develop its workforce; thus, improving its workforce capability.

Level 2:   Repeatable

The key process areas at the Repeatable level focus on establishing a foundation of basic workforce practices that can be continuously improved to develop the workforce and on eliminating problems that hinder work performance. A supportive work environment, grounded in appropriate values and supportive of effective interpersonal communication, is established. These basic workforce practices are established for staffing, performance management, training, and compensation. Basic discipline is in place in the organization's workforce activities.

Work Environment

A key process area for Level 2: Repeatable

The purpose of Work Environment is to establish and maintain physical working conditions that allow individuals to perform their tasks efficiently and to concentrate on their tasks without unnecessary or inappropriate distractions.

Work Environment involves ensuring that the work environment complies with all applicable laws and regulations, that improvements are made that will enhance performance, that impediments to performance are removed, and that distractions are minimized.

Establishing an effective work environment begins with ensuring that the work environment complies with all laws and regulations. Sufficient facilities and personal workspace are made available for individuals to perform their assigned responsibilities. Improvements to the effectiveness of the work environment are identified and prioritized. Within reasonable boundaries, improvements are made to the work environment. Environmental and physical impediments in the work environment are eliminated. Distractions in the work environment are identified and minimized.

Goals

Goal 1   **An environment that supports the performance of business processes is established and maintained.**

Goal 2   **The resources needed by the workforce to perform their assignments are made available.**

Goal 3   Distractions in the work environment are minimized.

Commitment to perform

Commitment 1   The organization follows a documented policy for establishing
                        and maintaining its work environment.

                        The policy typically specifies that:

                        1. Work environment conditions will support the business objectives and
                            stated values of the organization.

                        2. Laws and regulations governing the work environment will be
                            administered and enforced.

                        3. Within prudent limits, the resources needed to perform the work will
                            be identified, prioritized, and made available.

                        4. Conditions that degrade the work environment will be eliminated.

                        5. Distractions in the work environment will be minimized.

Commitment 2   **An organizational role(s) is assigned responsibility for assisting
                        and advising units on work environment-related activities.**

                        Examples of individuals or groups who may assist and advise on work
                        environment activities include:
                        - committees on work environment conditions,
                        - management or staff committees,
                        - physical plant or facilities staff,
                        - telecommunications staff,
                        - computing facilities staff, or
                        - members of the human resources group.

Ability to perform

Ability 1   **Within each unit, an individual is assigned responsibility for ensuring that work environment activities are performed.**

Ability 2   **Within prudent limits, adequate resources and funding are provided for implementing improvements to the work environment.**

> Prudent limits are those that are determined by management and are based on considerations that might include:
> – responsible fiscal policies,
> – sound management of the organization's resources,
> – resources that would be expected to be available in a professional environment,
> – the resources that are available in competitors' environments, and
> – benchmarks of similar work environments.

1. Experienced individuals who have expertise in improving various aspects of the work environment are made available for improvement activities.

> Examples of contributions that could be made by those with special skills include:
> – training in laws and regulations governing the work environment,
> – analyzing impediments in the work environment,
> – analyzing the potential benefits from automation, and
> – identifying resources that would improve performance.

2. Adequate funding is made available for resources that would improve the work environment.

3. Support for implementing work environment improvements is made available.

Ability 3

Individuals receive the training necessary to maintain an effective work environment.

> Examples of training related to the work environment include:
> - laws and regulations governing the work environment,
> - health and safety procedures, and
> - how to use new equipment or workstations.

Ability 4

Individuals responsible for improving the work environment are trained in methods relevant to their responsibilities.

> Examples of training in methods to improve the work environment include:
> - remedies and procedures for handling violations of laws, regulations, and procedures related to the work environment;
> - methods for assessing the work environment;
> - methods for minimizing or eliminating impediments or distractions in the work environment; and
> - methods for aiding task performance with technology.

Activities performed

Activity 1

Laws and regulations governing the work environment are communicated to the workforce.

**Activity 1
(continued)**

Examples of laws and regulations include:

- labor-related laws and regulations, including the Federal Labor Standards Act (FLSA) and the National Labor Relations Board (NLRB);

- safety-related laws and regulations, including those of the Occupational Safety and Health Administration (OSHA) and local fire codes;

- laws and regulations that govern equal access to the workplace, limit discrimination, and identify sexual harassment, including the Equal Employment Opportunity (EEO) laws and regulations;

- laws and regulations providing access for the physically challenged, including the Americans with Disabilities Act (ADA); and

- applicable state and local laws and regulations.

Guidance should be sought from the human resources and/or legal departments in interpreting and administering these laws and regulations since they can have serious legal implications.

Activity 2

Violations of laws and regulations governing the work environment are raised to a responsible individual and are handled according to a documented procedure.

Guidance should be sought from the human resources and/or legal departments in handling all violations of laws and regulations governing the work environment.

The procedure typically specifies:

1. How and to whom violations of various laws and regulations are to be reported.

2. How reports of violations are to be documented.

3. Who should be informed for different types of violations.

4. How different types of violations are to be investigated.

**Activity 2
(continued)**

5. Procedures for bringing the work environment into compliance with various laws and regulations.

6. How actions related to resolving different types of violations are to be tracked to closure.

7. Management and individual responsibilities related to all aspects of handling different types of violations.

Activity 3

The resources needed to accomplish a unit's business processes are made available in a timely manner.

1. Adequate space is provided for performing assigned work.

   Examples of space include:
   - individual workspaces;
   - public spaces, such as conference rooms and meeting spaces; and
   - specialized workspaces, such as laboratories and training areas.

2. Adequate physical and technical resources are provided for performing assigned work.

   Examples of physical resources include:
   - office furniture and equipment;
   - lighting;
   - computers and workstations;
   - application software (e.g., editors, word processing and document production tools, spreadsheets, and project management tools);
   - communications technologies, such as telephones, fax, and electronic mail;
   - printing and reproduction equipment, such as high-resolution printers, copiers, and microform printers;
   - documentation;
   - lab equipment;
   - maintenance; and
   - training equipment.

**Activity 3
(continued)**

3. Specialized resources that would normally be available for performing a specific type of work in most organizations are made available.

> For example, in a software development organization, basic computational technology resources would include:
> – computers, workstations, and/or PCs;
> – networks (LANs, WANs, etc.);
> – software tools such as compilers, linker-loaders, and debuggers;
> – project management tools; and
> – electronic communications.

4. Adequate staff support is provided for performing assigned work.

> Examples of staff support resources include:
> – business and administrative support,
> – computer support personnel,
> – technical writing and documentation support,
> – lab technicians, and
> – clerical support.

5. Space, facilities, and staff resource needs are planned and provided on a periodic (e.g., annual) and event-driven (e.g., project initiation) basis.

Activity 4

Individual workspaces provide an adequate personal environment for performing assigned work responsibilities.

Individual workspaces provide:

1. Protected private space where personal effects, work tools, and products can be secured and stored as necessary.

2. Adequate desktop space for the tools that are used in performing tasks and the work products that are being produced and manipulated.

3. Adequate illumination for performing work.

**Activity 4
(continued)**

4. Sufficient isolation and noise protection to support the level of concentration needed to perform individual work.

5. Sufficient space to perform work activities alone or with a limited number of colleagues, as appropriate.

Activity 5

Periodic improvements are made to the work environment that increase effectiveness in performing work.

1. The work environment is periodically analyzed to identify changes or resources that could improve work performance.

2. Resources that would improve the effectiveness of the work environment are prioritized.

3. Within prudent limits, such as available budget, resources with high priorities are made available.

> Complying with ADA may cause a higher priority to be placed on some resources in order to support job performance by all individuals. Guidance should be sought from the human resources and/or legal departments in complying with such laws and regulations.

4. Necessary support or training to use the resources deployed is made available.

Activity 6

Environmental factors that degrade or endanger the health of the workforce are identified and corrected.

> Examples of environmental factors that degrade or endanger the health of the workforce include:
> - unsafe working conditions,
> - improper posture or ergonomics,
> - exposure to unhealthy substances,
> - poor air or water quality, or
> - excessive stress.

Activity 7   **Physical factors that degrade the effectiveness of the work environment are identified and corrected.**

> Examples of physical factors that degrade the effectiveness of the work environment include:
> - unsafe working conditions;
> - inadequate security;
> - inadequate office or meeting space;
> - poor lighting;
> - inadequate heating, ventilation, and cooling;
> - unpleasant odors;
> - vibration;
> - excessive noise; or
> - crowding.

Activity 8   **Sources of frequent interruption or distraction that degrade the effectiveness of the work environment are identified and minimized.**

> Examples of time-related distractions include:
> - telephone interruptions,
> - excessive meetings,
> - poorly organized work,
> - unnecessary or excessive administrative tasks, or
> - work that could be performed by lower paid individuals.

Measurement and analysis

Measurement 1   **Measurements are made and used to determine the status of activities related to the work environment.**

**Measurement 1
(continued)**

Examples of measurements include:

- average square footage of individual workspaces in the work environment,
- average square footage of desktop surfaces in individual workspaces in the work environment,
- utilization of shared public spaces (such as conference rooms),
- number of complaints or grievances about the work environment,
- number of violations of work laws or regulations,
- effectiveness of improvements on performance,
- percent of work affected by time distractions,
- percent of time spent in meetings,
- rate at which physical distractions are corrected, and
- investment in work environment improvements.

Verifying implementation

Verification 1   **A responsible individual(s) verifies that activities related to the work environment are conducted according to the organization's documented policies.**

These reviews verify that:

1. Conditions in the work environment satisfy all applicable laws and regulations.

2. Noncompliance items are handled appropriately.

3. Violations of laws and regulations are handled consistent with legal requirements.

4. Improvements in the work environment are deployed in a timely and effective fashion.

5. Severe, especially physical, distractions are handled in a timely manner.

6. All actions related to the work environment are periodically reviewed to ensure they conform to documented policies.

Verification 2   **Executive management periodically reviews the organization's work environment activities and improvements to determine if they comply with the organization's documented policies.**

These reviews verify:

1. Results from reviews of work environment conditions and practices against the organization's stated values and policies.

2. The amount and effectiveness of improvements made in the work environment.

3. Progress of installing improvements in the work environment.

4. Status of any violations of applicable laws and regulations.

5. Status of resolution for noncompliance issues.

6. Trends related to work environment-related issues.

Communication

A key process area for Level 2: Repeatable

The purpose of Communication is to establish a social environment that supports effective interaction and to ensure that the workforce has the skills to share information and coordinate their activities efficiently.

Communication involves establishing effective top-down and bottom-up communication mechanisms within the organization, ensuring that all individuals have the necessary communications skills to perform their tasks, coordinate effectively, conduct meetings efficiently, and resolve problems.

Establishing effective communication begins with communicating the values, policies, and procedures of the organization to the workforce. Oral and written communication capabilities are improved through training. The interpersonal communication skills necessary to maintain effective working relationships are developed. Meetings are managed to ensure that time is used most effectively. Communication problems are handled through appropriate means. Individual opinions on working conditions are sought. Formal procedures are established for raising and resolving grievances.

Goals

Goal 1   **A social environment that supports task performance and coordination among individuals and groups is established and maintained.**

Goal 2   **Information is shared across levels of the organization.**

Goal 3   **Individuals develop skills to share information and coordinate their activities.**

Goal 4   **Individuals are able to raise grievances and have them addressed by management.**

Commitment to perform

Commitment 1   **Executive management establishes and communicates a set of values for the organization regarding the development and management of its workforce.**

> Examples of workforce issues that can be covered in the organization's values include:
> - implicit and explicit commitments between the organization and its workforce;
> - commitment to growing talent and increasing performance;
> - philosophy of career development;
> - treatment of individuals;
> - workforce rights;
> - open communication without fear of reprisal;
> - emphasis on teamwork;
> - intent to align individual, team, unit, and organizational performance;
> - people-related activities to be performed regularly;
> - desired cultural values and attributes;
> - commitment to continuous improvement of people-related activities; and
> - other values, as appropriate.

Executive management:

1. Documents a set of values to guide people-related behavior in the organization.

**Commitment 1
(continued)**

2. Publicly endorses the documented values of the organization.

3. Ensures that the values are communicated to all members of the workforce.

> Examples of methods for communicating the values of the organization include:
> - public display of a values statement,
> - open discussion of values-related issues through appropriate communications channels,
> - inclusion in orientation training,
> - inclusion in management and team training,
> - explicitly using and applying the values when performing people-related activities,
> - referring to guiding values in explaining decisions, and
> - other methods, as appropriate.

4. Derives policies and procedures for people-related activities from these values.

5. Establishes mechanisms to ensure that all people-related activities comply with the organization's values.

6. Enforces corrective action when people-related activities do not comply with the values of the organization.

7. Ensures that all executive decisions and actions demonstrate consistent support for the organization's values.

Commitment 2

The organization follows a documented policy for conducting its communication-related activities.

The policy typically specifies:

1. Relationship of the communication activities to the business objectives and documented values of the organization.

2. Importance of maintaining an open environment that supports communication flow in all directions.

3. Requirements for periodic communication of organization-wide information to all individuals and groups.

Commitment 2 **(continued)**	4. Requirements for developing communication skills in all individuals and groups.
	5. Opportunities for raising and resolving grievances.
Commitment 3	**An organizational role(s) is assigned responsibility for assisting and advising units on communication-related activities.**

> Examples of individuals or groups who might assist and advise on communication-related activities include:
> – human resources staff,
> – training staff,
> – technical writing staff, or
> – public relations or other communications staff.

Ability to perform

Ability 1	**Within each unit, an individual(s) is assigned responsibility for ensuring that communication-related activities are performed.**
Ability 2	**Adequate resources and funding are provided for implementing communication-related activities.**

1. Experienced individuals with communication expertise are made available for communication-related activities.

2. Adequate funding is made available for communication-related activities.

3. Support for implementing improvements in communication is made available.

Ability 3

Individuals responsible for improving communications are trained in methods relevant to their responsibilities.

Examples of training related to facilitating communication include:
- training in communication skills such as writing or speaking,
- facilitating and developing communication skills in others,
- development of interpersonal communication skills,
- dispute arbitration/resolution,
- meeting facilitation,
- grievance processes,
- planning and executing an organizational communication strategy, and
- how to use different communication media effectively.

Activities performed

Activity 1

The people-related policies and practices of the organization are communicated to the workforce.

1. Individuals and units are informed of policies and practices that affect them.

Examples of people-related policies and practices that should be communicated include:
- hiring policies,
- training needs to meet the requirements of positions,
- compensation strategies,
- career growth policies,
- cross-organizational promotion and transfer procedures,
- retraining practices,
- grievance procedures, and
- performance management practices.

**Activity 1
(continued)**

2. Whenever people-related policies and practices are changed, the changes are communicated to the workforce.

3. The organization periodically determines whether the workforce is aware of its people-related policies and practices.

4. When misunderstandings of the people-related policies and practices exist, corrective action is taken.

Activity 2

Management communicates information about organizational events and conditions to the workforce on a periodic and event-driven basis.

> Examples of communication mechanisms include:
> - organization-wide meetings,
> - staff meetings,
> - one-on-one meetings,
> - bulletin boards,
> - electronic mail announcements,
> - internal publications,
> - newsletters, and
> - memos.

Activity 3

The communication skills needed to perform task assignments are developed.

1. Those with supervisory responsibility assess whether individuals have the oral or written communication skills required to perform the tasks they are assigned.

**Activity 3
(continued)**

Examples of oral and written communication problems include:
- inadequate literacy in one or more of the languages used in the organization;
- lack of knowledge about the jargon or terms used in a specific business or technical domain;
- inappropriate communication protocols for the situation;
- weak speaking or writing skills;
- lack of skill in using communication media, such as email, word processors, telephones, and personal digital assistants.

2. When individuals lack the oral or written communication skills necessary to perform a task, corrective action is taken.

Examples of corrective action include:
- training in oral or written communication skills,
- training in the use of communication media,
- personal coaching, or
- reassignment of tasks.

3. Training in oral and written communication skills is instituted in those situations where it is necessary for successful individual and/or unit performance.

Activity 4

The interpersonal communication skills necessary to establish and maintain effective working relationships are developed.

Examples of interpersonal skills that support working relationships include:
- interpersonal communication and dynamics,
- group communication and dynamics,
- interaction protocols for specific situations,
- problem resolution skills,
- negotiation skills, or
- multicultural sensitivity and other diversity related skills.

Activity 5 **Interpersonal problems or conflicts that degrade the quality or effectiveness of working relationships are handled appropriately.**

> Examples of appropriate ways to handle interpersonal problems include:
> - improving interpersonal communication skills;
> - coaching or counseling one or more individuals;
> - improving the dynamics of a group;
> - use of an ombudsman, arbitrator, or facilitator;
> - reassignment of one or more individuals;
> - performance management actions; or
> - disciplinary action.

Activity 6 **Individual's opinions on their working conditions are sought on a periodic and event-driven basis.**

1. Input is collected on a periodic basis.

> Examples of mechanisms for gathering opinions from individuals include:
> - opinion surveys or organizational climate questionnaires;
> - interviews with a sample of the workforce;
> - interviews with management, including meetings that allow individuals to skip levels of management;
> - group meetings on issues;
> - postmortem reviews;
> - suggestion boxes or other private means;
> - electronic means; and
> - other solicitations for input.

2. Inputs are analyzed and results are prepared according to the issues being studied.

3. Feedback on the results of these analyses, decisions to be made based on these analyses, and actions to be taken as a result of these analyses are communicated to the workforce.

**Activity 6
(continued)**

4. To ensure confidentiality, results are presented so that individuals or groups cannot be identified as the source of information unless they have given their permission to be identified.

Activity 7

Individuals or groups can raise grievances according to a documented procedure.

1. The procedure typically specifies:
    - ❑ how a grievance or issue may be raised;
    - ❑ requirements for tracking and resolving a grievance or issue;
    - ❑ how responses should be provided to a grievance or issue;
    - ❑ how to conduct and record a meeting, if needed, to discuss possible resolutions;
    - ❑ follow-on activities after problem-solving meetings; and
    - ❑ how to address a grievance directly to higher management if it cannot be resolved at a lower level.

2. Individuals or groups may raise a grievance or issue to any level of management without fear of reprisal.

    > Examples of mechanisms for raising a grievance or issue may include:
    > –   written grievances or issues submitted to an appropriate individual for disposition,
    > –   meetings with an appropriate individual or manager,
    > –   meetings with an identified neutral party or ombudsman, and
    > –   formal, documented grievance procedures.

3. The resolution of a grievance or issue can be appealed to higher management levels.

Activity 8

Management tracks to closure activities related to the resolution of a grievance.

1. Responsibilities are assigned for tracking the status of grievances and issues.

2. Executive management periodically reviews the status of all open grievances and issues.

**Activity 8
(continued)**

3. When appropriate progress has not been made in resolving a grievance or issue, corrective action is taken.

Activity 9

Meetings are conducted to make the most effective use of the time of those participating.

1. Guidelines are developed for maximizing meeting efficiency based on the organization's culture and values, business processes, and the purpose of the meeting.

    > Examples of topics addressed by meeting guidelines include:
    > -   meeting purpose,
    > -   meeting planning,
    > -   meeting agenda and time management,
    > -   responsibilities and roles of participants,
    > -   attendance size and requirements,
    > -   meeting procedures,
    > -   location and room set-up,
    > -   participation mechanisms, and
    > -   practices for tracking action items or issues.

2. Meetings are called only if they offer an adequate benefit for the time consumed; otherwise, a more efficient way to accomplish the goal is pursued.

3. To the extent possible, a meeting's purpose, objectives, and procedures are planned, and an agenda is distributed in advance.

4. Meetings are conducted to maintain focus on accomplishing their original purpose.

5. Meetings are conducted to encourage the participation of all who are able to make a contribution.

6. Actions to be performed following the meeting are assigned and tracked to completion.

Measurement and analysis

Measurement 1   **Measurements are made and used to determine the status of communication activities.**

Examples of measurements of communication activities include:
- use of communication media,
- number of people trained in communication skills,
- results from opinion surveys,
- number of interpersonal conflicts handled through formal mechanisms,
- number of grievances or issues raised,
- number of grievance or issue meetings that were requested,
- time and effort expended to resolve grievances and issues,
- time spent in meetings, and
- rate at which meeting action items are closed.

Verifying implementation

Verification 1   **A responsible individual(s) verifies that communication activities are conducted according to the organization's documented policies.**

These reviews verify that:

1. Communication activities comply with the organization's stated values, policies, and documented procedures.

2. Communication activities are performed according to the unit's plans and selected methods.

3. Noncompliance items are handled appropriately.

Verification 2   **Executive management periodically reviews the organization's communication activities to determine if they comply with the organization's documented policies.**

These reviews address:

1. Conformance of communication activities with the organization's stated values, policies, and procedures.

2. Status of resolution for noncompliance issues.

3. Progress in the performance of any planned communication activities.

4. Rate at which serious communication problems are being reduced.

5. Trends related to communication issues.

6. The number of grievances and issues raised and the rate of resolving them.

7. Conformance of grievance resolution with the organization's documented procedure.

8. Trends related to grievances and issues raised.

Staffing

A key process area for Level 2: Repeatable

The purpose of Staffing is to establish a formal process by which talent is recruited, selected, and transitioned into assignments in the organization.

Recruiting involves identifying the knowledge and skill requirements for open positions, motivating all individuals to seek out qualified candidates, announcing the availability of positions to likely sources of candidates, and reviewing the effectiveness of recruiting efforts. Selection involves developing a list of qualified candidates, defining a selection strategy, identifying qualified candidates, thoroughly evaluating qualified candidates, and selecting the most qualified candidate. Transitioning involves attracting selected candidates, orienting them to the organization, and ensuring their successful transition into their new positions.

Recruiting activities begin when open positions are identified. Tasks to be performed by individuals filling these open positions and the characteristics of candidates who would be capable of performing the tasks are listed. These open positions are communicated to the unit's workforce so that they can aid in recruiting and screening qualified candidates. The openings are also posted internally and communicated to external sources that are likely sources of qualified candidates. A responsible individual(s) works with external sources to maximize the likelihood of identifying candidates. The status of recruiting activities is reviewed within each unit and periodically by executive management. Lessons learned about recruiting approaches and sources are periodically assessed.

A list of qualified candidates is drawn from the results of recruiting efforts. A selection strategy is developed based on the characteristics of the

position to be filled. A short list of the most qualified candidates is chosen for further consideration. The skills and experience of the candidates on the short list are thoroughly evaluated against position criteria through reference checks and other methods decided in advance. The rights and dignity of the candidates are respected throughout the selection process. All appropriate individuals in the unit participate in the selection process. Ultimately, the most qualified candidate is selected.

The organization coordinates its activities to attract selected candidates. Actions are taken to ensure that the transition of individuals into their new positions is successful. The results of the selection process are reviewed and success is measured on a periodic basis.

Goals

Goal 1	**The organization actively recruits for qualified talent.**
Goal 2	**The most qualified candidate is selected for each position.**
Goal 3	**Selected candidates are transitioned into their new positions.**
Goal 4	**Members of a unit are involved in its staffing activities.**

Commitment to perform

Commitment 1	**The organization follows a documented policy for conducting its staffing activities.**

**Commitment 1
(continued)**

The policy typically specifies that:

1. Staffing activities comply with the business objectives and stated values of the organization.

2. Staffing activities comply with all applicable laws and regulations.

> Examples of relevant laws and regulations include:
> - requirements to verify the right to work (i.e., citizenship, work permits, etc.);
> - Equal Employment Opportunity (EEO) requirements;
> - Americans with Disabilities Act (ADA) requirements;
> - other regulatory mandates, such as conflict of interest, licensing or certification; and
> - state and local laws and regulations.

3. Responsibilities for initiating, conducting, and approving all staffing decisions are assigned.

4. Appropriate procedures will be defined, documented, and used for:
   - ❑ having positions declared open;
   - ❑ internal and external recruiting;
   - ❑ announcing the availability of the position;
   - ❑ developing a list of qualified candidates;
   - ❑ evaluating and selecting the most qualified candidate;
   - ❑ communicating outcomes to candidates, both positive and negative;
   - ❑ handling confidential selection information;
   - ❑ transitioning selected candidates into their new position;
   - ❑ orienting selected candidates to the organization;
   - ❑ outprocessing and conducting exit interviews with terminating employees;
   - ❑ workforce reductions and outplacement; and
   - ❑ documenting and measuring the staffing process.

**Commitment 1
(continued)**

> These procedures are intended to define a minimal set of staffing
> activities. The purpose of these procedures is to keep those in units who
> are responsible for staffing from having to invent their own procedures,
> while allowing them the flexibility to perform staffing activities most
> suited to their unit's needs and providing them the guidance to conduct
> their staffing activities in compliance with applicable laws,
> regulations, and organizational policies.

5. The rights and dignity of each candidate are to be protected during
    the staffing process.

Commitment 2 **An organizational role(s) is assigned responsibility for assisting
and advising units on staffing activities and procedures.**

> Examples of individuals who might assist or advise units on staffing
> activities and procedures include:
> −   human resources staff,
> −   legal staff, or
> −   trainers.

Ability to perform

Ability 1 **Within each unit, an individual(s) is assigned responsibility for
ensuring that staffing activities are performed.**

> Examples of individuals who may be assigned responsibility for
> various staffing activities include:
> −   a member of the human resources group,
> −   the unit manager or assistant,
> −   a staffing committee,
> −   a project or group leader, or
> −   an empowered team.

Ability 2   **Adequate resources and funding are provided for the planned staffing activities.**

1. Where feasible, experienced individuals who have expertise in staffing methods and procedures are made available for conducting staffing activities.

2. Tools and instruments to support staffing activities are made available.

   Examples of tools and instruments include:
   - templates for job or task descriptions;
   - templates for recruiting announcements;
   - instruments used in the selection process;
   - candidate folders including resumes, recommendations, and correspondence;
   - copies of policies such as recruiting travel, relocation, benefits, and transition; and
   - standard forms for documenting staffing activities.

3. Support for recruiting activities is made available.

   Examples of support for recruiting activities include:
   - recruiting trips,
   - finder's fees,
   - advertising, and
   - staff involvement.

Ability 3   **Individuals responsible for staffing activities are trained in methods and procedures relevant to their responsibilities.**

**Ability 3
(continued)**

> Examples of methods in which individuals may receive training
> include:
> - staffing procedures required by organizational policy,
> - position and task analysis,
> - developing and weighting selection criteria,
> - interviewing skills,
> - selection techniques and candidate evaluation,
> - orienting and transitioning individuals into new positions, and
> - laws and regulations governing selection and employment.

Ability 4   **Individuals participating in staffing activities receive orientation in the laws, regulations, methods, and organizational policies relating to the staffing process.**

Activities performed

Activity 1   **Responsible individuals plan and coordinate the staffing activities of their units in accordance with documented policies and procedures.**

1. Staffing activities are planned and tracked.

2. Unit staffing activities are conducted according to the organization's documented policies and procedures.

3. Unit staffing activities are defined and conducted with the assistance and approval of the human resources group.

Activity 2   **Position openings within a unit are identified and analyzed.**

1. A unit's activities and workload are analyzed to determine the number and type of staff required to accomplish the assigned work.

**Activity 2
(continued)**

2. Position openings are approved according to a documented procedure based on:

   ❑ increased workload,

   ❑ budget,

   ❑ departed staff, or

   ❑ other relevant criteria.

3. Tasks to be performed by each open position are identified and documented.

4. Characteristics of candidates who are capable of performing the tasks involved in each open position are defined and documented.

   > Examples of relevant characteristics may include:
   > - job-related knowledge,
   > - task-related skills,
   > - work habits,
   > - ability to work in groups or teams,
   > - development potential within the organization,
   > - years of relevant experience,
   > - related accomplishments, or
   > - degrees and/or training certificates.

5. The primary source(s) for filling each open position is determined.

   > Examples of sources for filling positions may include:
   > - internal recruiting,
   > - external recruiting,
   > - temporary or contract staff, or
   > - consultants.

Activity 3

Position openings within the organization are widely communicated.

1. Open positions are communicated throughout the organization so that qualified individuals can apply for the opening.

Activity 3   2. All position openings within a unit are regularly communicated to
(continued)   members of the unit so that they can assist in recruiting qualified
                           candidates.

Activity 4   **External recruiting activities are planned and coordinated with
                        unit requirements.**

                        1. Responsibilities for external recruiting activities are coordinated
                            between the unit and the organization, and recruiting activities are
                            planned.

                            > External recruiting activities can be conducted either by members of the
                            > unit or by the organization, depending on the source of candidates being
                            > approached. When the organization takes responsibility for
                            > approaching a source of candidates, it should represent both current and
                            > future needs of units in the organization.

                        2. Likely sources of candidates who are qualified for open positions are
                            identified.

                            > Examples of sources of likely candidates include:
                            > –   universities;
                            > –   technical schools;
                            > –   trade press;
                            > –   bulletin boards;
                            > –   advertisements;
                            > –   professional, trade, or honorary societies;
                            > –   professional conferences and trade shows;
                            > –   minority recruitment sources;
                            > –   professional recruiters;
                            > –   colleagues; or
                            > –   other relevant sources.

                        3. Position openings are communicated to external sources through the
                            relevant media.

                        4. A designated individual(s) follows up with external sources to aid in
                            contacting qualified candidates.

Activity 5   **A selection process and appropriate selection criteria are defined for each open position.**

1. Selection criteria are defined from:

   ❏ the tasks and job characteristics of the open position,

   ❏ characteristics of candidates who are capable of performing the work responsibilities of the open position,

   ❏ other skill needs of the unit or organization, and

   ❏ other staffing objectives of the organization.

2. Activities for evaluating the qualifications and fitness of each candidate against the selection criteria are defined.

   > Examples of activities for evaluating candidates include:
   > – individual interviews,
   > – group interviews,
   > – formal structured interviews,
   > – presentations,
   > – sample tasks,
   > – review of the candidate's portfolio,
   > – selection center exercises,
   > – biographical/experience inventories,
   > – job-related tests, and
   > – other appropriate methods.

3. The selection activities defined are organized into a selection process for the open position.

4. The selection activities and process are reviewed by an appropriate individual from the human resources group to ensure that they respect the rights and dignity of each candidate chosen for further consideration and that they are consistent with all laws, regulations, and organizational policies governing selection decisions.

5. The selection process is communicated to the existing workforce and candidates involved.

Activity 6   **Each unit, in conjunction with their human resources group, conducts a selection process for each position it intends to fill.**

1. A list of qualified candidates for each position is drawn from recruiting activities, maintained throughout the selection process, and retained for future use.

> Examples of uses for this retained list include:
> - EEO reporting,
> - analyzing the most effective sources of candidates, and
> - analyzing factors influencing recruiting success and failure.

2. A set of the most qualified candidates is invited to undergo further evaluation through the selection process.

3. The selection process is performed to generate information regarding candidates' qualifications and fitness relative to the identified selection criteria for the position.

4. Appropriate members of the unit participate in the selection process and provide input to the selection decision.

5. Documentation from the selection process is systematically maintained according to a documented procedure.

> Issues covered in the procedure might include:
> - what information will be maintained,
> - how long documentation will be maintained,
> - who has access to the documentation,
> - how documents may be inspected and challenged,
> - how documentation security will be maintained, and
> - how the documentation may be used.

Activity 7   **The position is offered to the most qualified candidate.**

1. The identified selection criteria are consistently applied to all candidates involved in the selection process.

2. All qualified candidates are compared regarding their relative fitness for the open position, and the most qualified candidate is selected.

3. References and/or backgrounds are checked for the selected candidate before an offer is made.

4. Timely feedback is provided to all candidates regarding the results of the selection process.

Activity 8   **The organization coordinates to attract the selected candidate.**

1. Within reason and fairness to the existing workforce, the hiring unit attempts to coordinate the arrangements for the position with the attributes and expectations of the selected candidate.

2. Terms of the offer are negotiated with the selected candidate in accordance with the documented policies of the organization.

> Usually the terms of the offer are handled by the human resources group. However, the person(s) in the hiring unit who is responsible for administering compensation decisions should be a party to these negotiations, since the outcome of these negotiations can create imbalances in the unit's compensation and benefits profile.
>
> Examples of offer terms to be negotiated include:
> - job level and title,
> - salary and benefits,
> - probationary period,
> - relocation,
> - training,
> - assignment and tasks,
> - office arrangements,
> - privileges, and
> - other appropriate issues.

Activity 9   **The selected candidate is transitioned into the new position.**

> Example transition activities include:
> – relocation planning,
> – house-hunting,
> – setting up a computing environment,
> – setting up an office and required equipment,
> – meeting existing members of the unit,
> – orientation to the job, and
> – orientation to the organization.

1. Responsibilities are assigned for transition activities.

2. A formal orientation to the organization is provided to the newly assigned individual.

> Examples of information presented in an orientation include:
> – business objectives and stated values of the organization;
> – company and organizational structure;
> – the organization's business (i.e., the products, software, and services it produces);
> – relevant policies;
> – employee benefits and services;
> – computing and information facilities; and
> – other appropriate issues.

3. Orientation to the unit and job responsibilities is provided to the newly assigned individual.

> Examples of information presented in a job orientation include:
> – description of initial tasks;
> – people in the unit;
> – ordinary unit processes and procedures;
> – job-related knowledge;
> – location of resources, such as computing facilities, information sources, and supplies;
> – upcoming events and schedules; and
> – other appropriate issues.

Activity 10   **All appropriate members of a unit are actively involved in its staffing process.**

1. Each unit periodically reviews the status of its staffing activities with all members of the unit.

2. All members of the unit participate in staffing activities, as appropriate.

> Examples of staffing activities in which members of the unit can participate include:
> - analyzing tasks,
> - identifying characteristics of qualified candidates,
> - recruiting,
> - screening potential candidates,
> - evaluating qualified candidates,
> - making selection decisions,
> - checking references,
> - attracting selected candidates,
> - orienting newly assigned individuals, or
> - other relevant activities.

3. Each unit reviews and documents lessons learned from its staffing activities.

Activity 11   **Workforce reduction and other outplacement activities are conducted in accordance with the organization's policies and procedures.**

1. The criteria for retaining or releasing individuals are defined in each unit where a workforce reduction or other outplacement activities are planned.

> Examples of criteria include:
> - unit's activities and workload,
> - tasks to be performed,
> - job characteristics,
> - skill requirements, and
> - individual performance results.

**Activity 11
(continued)**

2. The identified criteria are consistently applied to all individuals subject to workforce reductions.

3. Workforce reductions and outplacement activities are reviewed to ensure that they respect the rights and dignity of each individual and that they are consistent with all laws, regulations, and organizational policies governing staffing decisions.

4. Workforce reductions and outplacement activities are communicated to the workforce.

5. Individuals to be released from a unit are made aware of open positions within the organization, when appropriate.

6. The termination of individuals from the organization is handled according to a documented procedure.

> Examples of issues that might be included in the procedure include:
> - methods for identifying individuals to be terminated,
> - how individuals will be informed of their termination,
> - access to work premises,
> - severance package, and
> - outplacement assistance.

Measurement and analysis

Measurement 1   **Measurements are made and used to determine the status and performance of staffing activities.**

**Measurement 1
(continued)**

> Examples of staffing measures include:
> - number of qualified candidates contacted through each recruiting source;
> - percent of qualified candidates contacted directly by staff rather than through other sources;
> - percentage of selected candidates accepting offers;
> - success of selection methods based on performance at the end of a probationary period;
> - time spent on recruiting, selection, and transitioning;
> - time from opening a position to filling it;
> - percent of unit members involved in staffing activities; and
> - rate of transitioning individuals into new positions.

Measurement 2   **Unit measures of staffing status are collected and aggregated at the organizational level.**

1. A historical database of staffing data is maintained.

2. Staffing data are periodically analyzed to determine trends.

Verifying implementation

Verification 1   **A responsible individual(s) verifies that staffing activities are conducted according to the unit's plan and the organization's documented policies.**

These reviews verify that:

1. Staffing activities comply with relevant legal and regulatory requirements.

2. Staffing activities are conducted in compliance with the organization's policies and stated values.

**Verification 1
(continued)**

3. Staffing activities are performed according to the unit's plans and selected methods.

4. Noncompliance items are handled appropriately.

Verification 2

Executive management periodically reviews the status of the organization's staffing activities to determine if they comply with its documented policies.

These reviews address:

1. Results from reviews of staffing practices against the organization's stated values and policies.

2. Status of resolution for noncompliance issues.

3. Progress in filling open positions.

4. Success in attracting selected candidates.

5. Trends relevant to future staffing decisions and requirements.

Performance Management

A key process area for Level 2: Repeatable

The purpose of Performance Management is to establish objective criteria against which unit and individual performance can be measured, to provide performance feedback, and to enhance performance continuously.

Performance Management involves establishing objective criteria for unit and individual performance, discussing performance regularly and identifying ways to enhance it, providing periodic performance feedback, identifying development needs, and systematically addressing performance problems or rewarding extraordinary performance.

The process of managing performance is initiated by collaboratively defining criteria for unit performance that are consistent with the unit's business plan. These unit criteria establish the framework in which individual performance can be measured objectively. A performance plan is periodically created for each individual. Those responsible for performance feedback have ongoing discussions about performance issues with those they are assigned to review.

Performance feedback involves mutual investigation of ways to enhance performance. Performance results are periodically documented. The development needs of each individual are documented for further action and career options are discussed. When necessary, performance problems are documented and an improvement plan is developed and tracked.

Reward includes special recognition outside of the compensation system for accomplishments of significant value to the organization. A reward strategy is developed that identifies the events or results that qualify for special recognition. The rewards program is communicated to the workforce. As rewards are made, public recognition is provided in order to reinforce those skills or behaviors that the organization values.

Goals

Goal 1   Job performance is measured against objective criteria and documented.

Goal 2   Job performance is regularly discussed to identify actions that can improve it.

Goal 3   Development opportunities are discussed with each individual.

Goal 4   Performance problems are managed.

Goal 5   Outstanding performance is recognized.

Commitment to perform

Commitment 1   The organization follows a documented policy for its performance management activities.

The policy typically specifies that:

1. Performance management activities serve business objectives and stated values of the organization.

2. Performance management activities comply with all applicable laws and regulations.

3. Performance is to be measured, where possible, against objective criteria.

4. Performance management information and data are confidential to the individual(s) they concern.

Commitment 1 (continued)

5. Appropriate performance management procedures will be defined, documented, and used for:

   ❑ identifying those responsible for providing performance feedback,

   ❑ developing performance criteria,

   ❑ periodically discussing job performance and possible improvements,

   ❑ delivering formal performance feedback,

   ❑ providing formal performance feedback at least as often as a specified minimum frequency,

   ❑ resolving disagreements about formal performance feedback,

   ❑ documenting and acting on development needs,

   ❑ documenting performance feedback,

   ❑ handling performance problems,

   ❑ rewarding outstanding performance, and

   ❑ granting access to and ensuring confidentiality of performance data.

6. The rights and dignity of each individual are to be respected during the conduct of all performance management activities.

7. Outstanding performance is recognized, and, when appropriate, rewarded.

> *Recognition* is accomplished through special acknowledgments made to an individual or group.
>
> *Reward* refers to variable amounts of money or other considerations provided to individuals or groups at random times without any prior agreement as to conditions of receipt.
>
> Recognition and rewards can be made on a periodic (e.g., annual performance awards) or occasional (e.g., project completion) basis. Recognition and rewards are made to reinforce the skills and behaviors that the organization values.

**Commitment 1
(continued)**

> Examples of reasons for providing recognition and rewards include:
> - exceptional individual, group, subunit, or unit performance;
> - process improvement;
> - project completion;
> - exceptional quality;
> - exceeding goals;
> - accomplishments beyond work assignments; or
> - outstanding skill development.

8. Appropriate recognition and reward procedures will be defined, documented, and used for:

   ❑ identifying those responsible for recognition and reward activities,

   ❑ defining the purposes of recognition and rewards,

   ❑ defining the basis for awarding special recognition or making rewards,

   ❑ communicating the structure of the recognition and reward system to the workforce,

   ❑ recommending an individual or group for recognition or reward,

   ❑ determining appropriate recognition and rewards,

   ❑ providing recognition and reward information to individuals,

   ❑ establishing and maintaining equity in the recognition and rewards system, and

   ❑ publicizing recognition and rewards.

Commitment 2   **An organizational role(s) is assigned responsibility for assisting and advising units on performance management activities.**

> Examples of individuals who may assist or advise units on performance management activities include:
> - human resources staff,
> - legal staff, and
> - those with expertise in performance improvement techniques.

Ability to perform

Ability 1

Within each unit, an individual(s) is assigned responsibility for ensuring that performance management activities are performed.

Examples of individuals who may be assigned responsibility for various performance management activities include:
- the unit manager or assistant,
- a performance committee,
- a project or group leader,
- an empowered team,
- a committee of peers,
- an individual, or
- a member of the human resources group.

Ability 2

Adequate resources and funding are provided for the performance management activities.

1. Experienced individuals who have expertise in performance management methods are made available for guidance in these activities.

Examples of expertise in performance management include:
- definition of performance criteria and measurement of performance;
- analysis of tasks and job performance;
- productivity and quality improvement methods;
- methods for providing effective feedback;
- methods for handling problem people; and
- laws, regulations, policies, and procedures governing performance management.

**Ability 2
(continued)**

2. Tools and instruments to support performance management activities are made available.

> Examples of tools and instruments include:
> - repositories of previously defined performance criteria,
> - templates with categories for recording performance information,
> - templates for capturing developmental needs information,
> - examples of documentation for performance problems, and
> - standard forms for documenting performance management activities.

3. Adequate staff time is allocated for performance management activities.

Ability 3

All individuals responsible for providing performance feedback are trained in performance management skills.

> Examples of relevant skills in which individuals responsible for providing performance feedback are trained include:
> - defining objective performance criteria,
> - assessing performance,
> - coaching and feedback skills,
> - performance appraisal methods,
> - identifying development needs,
> - handling problem employees,
> - documenting unsatisfactory performance,
> - providing recognition and rewards, and
> - laws and regulations governing selection and employment.

Ability 4   **All individuals receive orientation in the performance management process.**

> Examples of relevant orientation topics include:
> - defining objective performance criteria,
> - analyzing task and job performance,
> - conducting job performance discussions, and
> - developing individual capabilities.

Ability 5   **Adequate resources and funding are provided for recognition and reward activities.**

1. Experienced individuals who have expertise in recognition and reward programs are made available for guiding these activities.

> Examples of contributions that could be made by those with special skills include:
> - designing and revising a recognition and reward program,
> - determining criteria for making rewards, and
> - participating in recognition and reward decisions.

2. Tools to support reward activities are made available.

> Examples of tools include:
> - recognition and reward guidelines,
> - repositories of previously defined recognition and reward criteria,
> - examples of documentation for recognition and rewards,
> - space for recognition announcements in bulletins and other organizational media, and
> - standard forms for documenting recognition and reward activities.

3. Funding for recognition and reward activities is made available.

Ability 6   All individuals responsible for performing recognition and
                       reward activities are trained in the organization's recognition
                       and reward practices.

Activities performed

Activity 1   **Objective performance criteria are established for each unit.**

> Examples of objective performance criteria include:
> – measurable goals to be achieved,
> – work products to be produced,
> – milestones to be met,
> – quantitative quality targets to be achieved,
> – customer/user satisfaction,
> – costs to be saved,
> – cycle time to be reduced,
> – increased integration with cooperating units,
> – services to be provided, and
> – business to be won.

1. The unit's performance criteria are based on the unit's operational
   business plan. These performance criteria are redefined on a schedule
   that coincides with each business planning cycle.

2. The unit's operational business plan responds to the business
   objectives of executive management and the organization.

3. All appropriate members of the unit are involved in developing the
   unit's performance criteria.

4. The unit's performance criteria are reviewed with and approved by
   the management to which the unit reports.

5. Approved performance criteria for the unit are communicated to all
   members of the unit.

Activity 2   **The unit's performance criteria are periodically reviewed to determine their appropriateness under changing business or organizational conditions and, if necessary, revised.**

Activity 3   **The unit's performance criteria are allocated appropriately to subunits, groups, or individuals within the unit.**

1. The unit's performance criteria are allocated to subunits, groups, and individuals based on their assigned responsibilities.

2. Individuals, groups, and subunits review the allocated performance criteria before accepting responsibility for them.

3. Issues with any allocated performance criteria are raised and negotiated with the appropriate authority and other affected parties.

4. Once agreement has been reached on allocated performance criteria, their acceptance is documented.

5. When the unit's performance criteria are revised, allocated performance criteria (e.g., subunit, group, or individual criteria) are revised to remain consistent with the unit's new performance criteria.

Activity 4   **Objective performance criteria are periodically documented for each individual.**

1. At least some of each individual's objective performance criteria are drawn from the performance criteria for their unit, subunit, or group.

2. The criteria for each individual's job performance include both individual criteria and group, subunit, and unit criteria, as appropriate.

3. The criteria for each individual's job performance are not in conflict with their group's, subunit's, or unit's performance criteria.

4. Individuals participate in developing their performance criteria.

5. Individuals agree to and approve their performance criteria.

6. Individual performance criteria are documented.

Activity 5 **Performance criteria for each individual are periodically reviewed and, if necessary, revised.**

1. Individual performance criteria are periodically reviewed to determine their appropriateness under changing personal, group, subunit, or unit conditions.

2. When appropriate, the individual's performance criteria are revised using the standard procedures employed for defining their performance criteria.

3. Revisions to the individual's performance criteria are documented.

Activity 6 **Those responsible for performance management activities maintain ongoing communication about job performance with those whose performance they evaluate.**

> Examples of methods for maintaining communication about job performance include:
> - informal discussions,
> - periodic meetings to review progress,
> - periodic meetings to analyze how the performance of assigned responsibilities could be improved, and
> - periodic meetings to discuss formal performance feedback.

1. Various components of job performance are periodically discussed and analyzed.

2. Ways to improve job performance are periodically discussed and improvement actions taken.

> Examples of ways to improve job performance include:
> - training in task-related knowledge and skills,
> - apprenticing to an experienced individual or group,
> - coaching or mentoring,
> - improved coordination with other individuals, and
> - improvements in work environment conditions.

Activity 7   **Those responsible for performance management activities maintain an awareness of job performance of the individuals whose performance they evaluate against each individual's documented performance criteria.**

> Examples of performance issues to maintain an awareness of include:
> - performance against documented individual performance criteria;
> - performance against documented performance criteria for the group, subunit, or unit;
> - individual contributions to performance against documented performance criteria for the individual, group, subunit, or unit;
> - impediments to achieving documented performance criteria;
> - the influence of rapidly changing conditions on reprioritizing documented performance criteria; and
> - the need to revise documented performance criteria.

Activity 8   **Potential improvements in process, tools, or resources which could enhance an individual's performance in his or her current assignment are identified and actions taken to provide them.**

Activity 9   **A consistent method is defined and documented for providing formal feedback on individual or group performance on a periodic or event-driven basis.**

1. Documentation from the performance feedback process is systematically maintained according to a documented procedure.

> Issues covered in the procedure may include:
> - what information will be documented,
> - how long documentation will be retained,
> - who has access to the documentation,
> - how documents may be inspected and challenged,
> - how documentation will be kept secure, and
> - how the documentation may be used.

**Activity 9
(continued)**

2. The documented method for providing performance feedback should:

- ❑ be consistent with laws and regulations,
- ❑ respect the rights and dignity of individuals and groups, and
- ❑ be performed consistently for all members of the workforce.

Examples of methods for providing performance feedback include:
- job performance discussions between each individual and those responsible for their performance,
- performance appraisal interview,
- peer group evaluation,
- 360° review,
- performance panel review, or
- other appropriate mechanisms.

Examples of issues to be discussed during job performance discussions include:
- individual performance compared with documented performance criteria;
- special causes of performance variation, if applicable;
- potential for job improvement (process, tools, and resources);
- knowledge & skills needing development; and
- career options.

Activity 10

Formal feedback on individual and/or group performance is provided on a periodic and event-driven basis.

1. Accomplishments are compared with documented performance criteria.

2. Other performance-related feedback is discussed, such as:

- ❑ capability on a number of predefined dimensions as evidenced in job performance,
- ❑ perceptions of performance by others if these perceptions are relevant to job performance criteria,
- ❑ subjective criteria such as interpersonal skills, and
- ❑ other relevant factors.

**Activity 10
(continued)**

3. Disagreements about performance feedback are discussed and raised to a higher level of management, if necessary.

4. Skills needing development and actions to develop them are discussed.

5. Opportunities to enhance performance are discussed and actions are identified.

6. Results of the formal performance feedback process are documented.

7. Documentation from the performance feedback process is reviewed with those responsible for managing performance by the next higher level of management.

Activity 11

If performance problems occur, they are discussed with the appropriate individual(s) or group.

> Particularly serious problems should be brought to the attention of the human resources group. Their guidance should be followed in handling serious problems, since actions leading to disciplinary sanctions or termination can have legal implications.

1. The performance problem is documented against appropriate performance criteria.

2. A formal discussion concerning the performance problem is held with the individual(s) or group and its results are documented.

Activity 12

A documented performance improvement plan is developed for resolving performance problems.

> Guidance should be sought from the human resources group in developing, managing, and making decisions based on performance improvement plans.

1. The performance improvement plan lists:
   - ❑ the performance problem(s) that must be corrected,
   - ❑ the actions to be taken to correct them,

**Activity 12
(continued)**

- ❏ the results that will be expected in correcting the problem(s),
- ❏ the frequency for reviewing results against the performance improvement plan,
- ❏ the criteria that will be used in evaluating progress against the performance improvement plan,
- ❏ the minimal acceptable performance for improvement purposes,
- ❏ the consequences for failure to improve performance, and
- ❏ the criteria that will be used to evaluate whether a different position or career option should be considered.

2. The performance improvement plan is documented.

3. The organization provides reasonable resources to assist the individual(s) or group in improving performance.

Activity 13

Progress against a documented performance improvement plan is periodically evaluated, discussed, and documented.

1. If performance deviates significantly from that expected based on a documented performance improvement plan, corrective action is discussed.

2. At an appropriate time, the improvement program is terminated, and appropriate decisions are made and documented based on performance against the improvement plan.

> Guidance should be sought from the human resources group in developing, managing, and making decisions based on performance improvement plans.

Activity 14

A development discussion is held with each individual on a periodic basis.

1. The development discussion can be conducted in conjunction with or subsequent to providing formal performance feedback.

**Activity 14
(continued)**

2. The knowledge and skills needed to enhance performance in current and future assignments are identified.

> Information on knowledge and skills needing development can come from:
> - individual desire to know more in a business-related area,
> - evidence from current performance,
> - changing requirements of the current assignment,
> - anticipated future assignments,
> - recommendations from others, or
> - desire for reassignment or advancement.

3. Future assignment and career options are discussed.

4. Development activities to enhance knowledge and skills and to prepare for future assignments and career options are identified and documented.

5. A personal development plan may be created and progress against it tracked.

Activity 15

Recognition and rewards are made on an appropriate basis as events occur that justify special attention.

> Examples of recognition and rewards include:
> - money;
> - plaques, trophies, certificates, or citations;
> - public recognition;
> - time off;
> - special perquisites;
> - special assignments;
> - parties or celebrations; or
> - other meaningful considerations.

Measurement and analysis

Measurement 1   **Measurements are made and used to determine the status and effectiveness of performance management activities within each unit.**

> Examples of measurements include:
> - percent of accomplished performance criteria at unit and individual levels,
> - rate of change in performance criteria during the performance period at unit and individual levels,
> - profile of performance across unit criteria,
> - profile of performance across individual criteria,
> - trends in development needs,
> - percent of the workforce with performance problems,
> - progress against performance improvement plans,
> - time spent on performance management activities,
> - number of outstanding performances recognized,
> - number and size of rewards,
> - disbursement of rewards by reward types, and
> - time from proposing a recognition or reward until it is received.

Measurement 2   **Unit measures of performance status are collected and aggregated at the organizational level.**

1. A historical database of performance criteria and performance data is maintained.

2. Performance data are periodically analyzed to determine trends.

Verifying implementation

Verification 1

A responsible individual(s) verifies that performance management activities are conducted according to the organization's documented policies.

These reviews verify that:

1. Performance management activities comply with applicable laws and regulations, and with the organization's policies and stated values.

2. Performance management activities are performed according to the unit's plans and selected methods.

3. All actions related to the development and implementation of performance improvement plans are periodically reviewed to ensure that they conform to documented policies.

4. Noncompliance items are handled appropriately.

Verification 2

Executive management periodically reviews the organization's performance management activities to determine if they comply with its documented policies.

These reviews verify:

1. Appropriateness of performance criteria defined at the unit level.

2. Progress in the performance of planned performance management activities.

3. Results from reviews of performance management practices against the organization's stated values and policies.

4. Status of resolution for noncompliance issues.

5. Status of performance problems and improvement plans.

6. Effectiveness of the performance management activities in enhancing performance.

Training

A key process area for Level 2: Repeatable

The purpose of Training is to ensure that all individuals have the skills required to perform their assignments.

Training involves identifying the skills required to perform critical tasks, identifying training needs within each unit, and ensuring that needed training is received.

Each unit identifies the skills required to perform critical tasks involved in the assignments given to individuals. Training needs are identified for each unit, and a plan is developed to ensure that needed training is received.

Goals

Goal 1   Training in the critical skills required in each unit is provided.

Goal 2   Individuals receive timely training that is needed to perform their assignments.

Goal 3   Training opportunities are made available to all individuals.

Commitment to perform

Commitment 1   **The organization follows a documented policy for its training activities.**

The policy typically specifies that:

1. Training activities serve the business objectives and stated values of the organization.

2. Training requirements for critical project skills are identified.

3. Training to support the performance of assigned responsibilities is provided in a timely manner.

4. Training opportunities are provided to support individual development activities.

5. Training time is allocated for each individual.

Commitment 2   **An organizational role(s) is assigned responsibility for assisting and advising units on training activities.**

> Examples of individuals who might assist or advise units on training activities include:
> - members of the training staff,
> - instructional designers, or
> - members of the human resources group.

Ability to perform

Ability 1   **Within each unit, an individual(s) is assigned responsibility for ensuring that training activities are conducted.**

**Ability 1
(continued)**

> Examples of individuals who might be assigned responsibility for various training activities include:
> - the unit manager or assistant,
> - a training committee,
> - a project or group leader,
> - an empowered team, or
> - a member of the human resources group.

Ability 2   **Adequate resources and funding are provided for implementing the planned training activities.**

1. When feasible, experienced individuals who have expertise in training methods and procedures are made available for conducting training and/or training-related activities.

> Examples of contributions that could be made by those with special skills include:
> - assistance in training needs analysis;
> - knowledge of sources for relevant training opportunities;
> - application of instructional design principles;
> - conducting in-house training; and
> - evaluating mastery of learning, transfer of learned skills to the workplace, and return on investment.

2. Tools and instruments to support training activities are made available.

**Ability 2
(continued)**

Examples of tools and instruments include:
- templates for training needs analysis,
- skill inventories,
- job aids,
- training roadmaps,
- lists of training opportunities available,
- resources for in-house training,
- workstations and training software, and
- software and materials for developing training.

3. Support for implementing training activities is made available.

Examples of implementation support include:
- training materials,
- development or procurement of training,
- delivery of training,
- training facilities and equipment,
- instructor certification (i.e., train the trainer),
- evaluation of the quality and effectiveness of the training, and
- maintenance of training records.

4. Adequate facilities are made available for on-site training.

Example characteristics of adequate training facilities include:
- freedom from distractions such as noise, unpleasant temperatures, or interruptions;
- separation from the actual work environment;
- sufficient space for student functions and exercises;
- ability to simulate actual working conditions when appropriate; and
- physical resources as needed to support training, such as computers, overhead projectors, flip charts, and white boards.

| Ability 3 | Training time is made available to each individual according to the organization's training policy. |

> Examples of methods to determine the amount of training time to be allocated to each individual include:
> - standard number of days of training that each individual should receive during a chosen time period (usually per year),
> - existing level of skill,
> - time needed to acquire the critical skills required by an individual's current assignment,
> - time required to develop a skill,
> - time required to achieve a given proficiency level in actual working conditions, and
> - time needed to prepare for potential future assignments.

| Ability 4 | Individuals responsible for identifying training needs are trained in methods relevant to their responsibilities. |

> Examples of relevant methods in which individuals are trained include:
> - identifying training needs, and
> - identifying training resources.

| Ability 5 | Individuals developing or providing training have the necessary training and/or experience required to perform their responsibilities. |

Activities performed

| Activity 1 | Critical skills required for performing critical tasks are identified in each unit. |

**Activity 1
(continued)**

1. Critical tasks involved in performing assignments in each unit are identified.

> A *critical task* is one that could jeopardize the successful performance of the assignment, if it is not performed well according to the task-related criteria. Examples of task-related criteria include:
> - accuracy,
> - speed, and
> - synchronization with other tasks.

2. Critical skills required to perform the critical tasks of an assignment are identified.

> *Critical skills* are those that, if not performed effectively, could jeopardize the successful performance of a critical task.

3. The identification of critical skills is updated each time there is a significant change in the critical tasks of the assignment or unit.

Activity 2

The training needs for each unit are identified.

1. The knowledge and skills of the individuals assigned to critical tasks are reviewed against the critical skills required for the assignment to determine if they need training.

> Examples of methods for evaluating training needs include:
> - individual's personal assessment,
> - individual's previous experience,
> - performance reviews,
> - assessment centers,
> - tests, and
> - training records.

2. Prior to undertaking a new assignment, an individual's knowledge and skills are assessed against the critical skills required for the new assignment to determine if training is needed.

**Activity 2
(continued)**

3. The types of training needed to develop the knowledge and critical skills to perform the critical tasks involved in an assignment are identified.

Activity 3

Each unit develops and maintains a plan for satisfying its training needs.

The plan typically specifies:

1. Training needed by each individual or group.

2. The schedule for receiving training.

3. How this training will be provided.

> Examples of methods for delivering training include:
> - classroom instruction,
> - apprenticeship or mentoring programs,
> - job rotation,
> - on-the-job training,
> - cross-training positions,
> - seminars and tutorials,
> - conferences and workshops,
> - local college and university courses,
> - computer-aided instruction,
> - videotapes, and
> - directed self-study courses.

4. How coordination with other groups that are involved with training will be accomplished.

> Examples of other groups that are involved with training include:
> - software engineering process group (SEPG),
> - corporate training group,
> - external training providers, and
> - local colleges and universities.

Activity 4   **Individuals and/or groups receive the training they need to perform their assigned tasks.**

1. Training alternatives are evaluated to determine which provides the most effective mechanism for developing the required knowledge and skills.

2. Training content is evaluated to ensure that it covers all the knowledge and skills needed by the individual or group.

3. To the extent possible, training is provided to improve knowledge and skills for their timely application in performing assigned tasks.

4. Individuals and groups provide feedback on the quality and usefulness of the training they receive.

Activity 5   **Relevant training opportunities are identified and made available to support each individual's development.**

1. Training needs are identified for each individual that support the development needs and interests identified during performance management activities conducted with them.

> See Activity 14 of the Performance Management key process area for the practices dealing with identifying the development needs of individuals in the workforce.

2. Potential matches are sought between training opportunities and development needs.

3. Within the limits of available training resources, training is provided when beneficial matches with an individual's development needs are identified.

Activity 6   **Training is tracked against the unit's training plan.**

1. The unit's performance is routinely reviewed against its training plan.

2. When performance deviates significantly from the plan, corrective action is taken.

Measurement and analysis

Measurement 1   **Measurements are made and used to determine the status of training activities within each unit.**

> Examples of measurements include:
> - amount of training provided,
> - rate of training against stated training needs,
> - retention of trained skills,
> - improvements in learned skills,
> - application of learned skills or behaviors in job performance, and
> - quality of training as rated in student evaluations.

Measurement 2   **Unit measures of training status are collected and aggregated at the organizational level.**

1. A historical database of training data is maintained.

2. Training data are periodically analyzed to determine trends.

Verifying implementation

Verification 1   **A responsible individual(s) verifies that training activities are conducted according to the unit's plan and the organization's documented policies.**

These reviews verify that:

1. Training activities comply with the organization's policies and stated values.

2. Training activities are performed according to the unit's plans and selected methods.

**Verification 1
(continued)**

3. All actions related to the development and implementation of training plans are periodically reviewed to ensure they conform to documented policies.

4. Noncompliance items are handled appropriately.

Verification 2

Executive management periodically reviews the organization's training activities to determine if they comply with its documented policies.

These reviews verify:

1. The amount and effectiveness of the training provided.

2. Progress in performance of planned training activities.

3. Results from reviews of training practices against the organization's stated values and appropriate policies.

4. Status of resolution for noncompliance issues.

5. Trends related to training needs.

Compensation

A key process area for Level 2: Repeatable

The purpose of Compensation is to provide all individuals with remuneration and benefits based on their contribution and value to the organization.

Compensation includes developing a documented compensation strategy, developing a plan for administering compensation, and making periodic adjustments to compensation based on performance.

A compensation strategy is developed that states the organization's philosophy and methods for compensating individuals. This compensation strategy is periodically reviewed against business conditions and revised when necessary. The strategy covers all forms of compensation to individuals and the criteria by which compensation will be determined. A compensation plan is prepared periodically to guide the administration of the compensation strategy.

Those responsible for making compensation decisions are provided guidance in administering and discussing the compensation strategy and decisions. Compensation decisions are based on common criteria stated in the strategy. Adjustments are periodically made to compensation based on individual performance and other documented criteria such as skill development or promotion.

Goals

Goal 1   **Compensation strategies and activities are planned, executed, and communicated.**

Goal 2   Compensation is equitable relative to skill qualifications and
                     performance.

Goal 3   Adjustments in compensation are made periodically based on
                     defined criteria.

Commitment to perform

Commitment 1   The organization follows a documented policy for its
                      compensation activities.

> In this discussion compensation is used to represent the concept of pay
> and guaranteed benefits. Pay includes any guaranteed fixed rate of
> salary or hourly wages provided to individuals, plus any variable
> amounts that are provided based on an existing agreement between the
> organization and the individual.

This policy typically specifies that:

1. Compensation activities serve the business objectives and stated
   values of the organization.

2. The compensation strategy and associated activities comply with all
   relevant laws and regulations.

3. Responsibilities for the organization's compensation strategy are
   defined and assigned.

4. A compensation strategy will be developed and periodically
   reevaluated.

5. The basis for determining and adjusting compensation includes skill
   qualifications and performance.

6. The frequency with which compensation activities are performed is
   defined.

Commitment 1 (continued)

7. Equity will be established and maintained in the compensation system.

8. Compensation information is confidential to the individual concerned.

9. The forms in which compensation information may be communicated, when this information will be communicated, and to whom this information may be communicated are defined.

Commitment 2   **An organizational role(s) is assigned responsibility for assisting and advising units on compensation activities.**

Ability to perform

Ability 1   **Within each unit, an individual is assigned responsibility for ensuring that compensation activities are performed.**

> Examples of individuals who may be assigned responsibility for various compensation activities include:
> - the unit manager or assistant,
> - a compensation and reward committee,
> - a project or group leader,
> - an empowered team, or
> - a member of the human resources group.

Ability 2   **Adequate resources and funding are provided for the planned compensation activities.**

1. Experienced individuals who have expertise in compensation methods and procedures are made available for guiding compensation activities.

**Ability 2
(continued)**

> Examples of contributions that could be made by those with special skills include:
> - designing and revising the compensation system,
> - determining criteria for adjustments to compensation, and
> - participating in compensation decisions.

2. Tools to support compensation activities are made available.

> Examples of tools include:
> - spreadsheets and analysis tools,
> - compensation surveys, and
> - compensation guidelines.

3. The available pool for funding compensation is determined.

4. Funding for compensation activities is made available.

Ability 3   **All individuals responsible for performing compensation activities are trained in those components of the organization's compensation strategy and practices that they need to understand to perform their responsibilities.**

Activities performed

Activity 1   **A compensation strategy is developed.**

The compensation strategy typically includes:

1. The rationale behind the strategic decisions made in the compensation strategy.

**Activity 1
(continued)**

2. The vehicles for providing compensation and how they are to be used.

> Examples of vehicles for providing compensation include:
> -   salary or hourly wages;
> -   incentive pay (e.g., production-based pay);
> -   periodic bonuses;
> -   profit-sharing or other forms of gain-sharing;
> -   health, life, and/or disability insurance;
> -   benefits such as holidays, leave, and educational assistance;
> -   daycare;
> -   retirement contributions;
> -   stock or stock options;
> -   professional society memberships;
> -   company furnished resources (e.g., cars, home computers); or
> -   special assignment pay.

3. Criteria for determining and adjusting compensation.

> Example criteria for determining and adjusting compensation include:
> -   current skills,
> -   experience,
> -   education completed,
> -   availability of skills in the market,
> -   individual performance,
> -   behaviors or activities valued by the organization,
> -   contribution to improvement activities,
> -   personal improvement relative to prior performance,
> -   group or organizational performance,
> -   continued benefit of past contributions or performance,
> -   functions performed beyond assigned responsibilities,
> -   additional skills developed,
> -   leadership exercised,
> -   willingness to take on difficult assignments,
> -   position responsibilities,
> -   job bands, or
> -   impact of position on organizational performance.

**Activity 1
(continued)**

4. Guidelines for using different compensation vehicles and criteria in determining compensation for different positions.

5. The methods by which compensation decisions will be made for individuals (and groups or units, if appropriate). These methods may vary by position or unit.

6. Methods for establishing and maintaining equity in the compensation system.

7. The frequency with which the compensation strategy needs to be reviewed.

8. Criteria for evaluating the appropriateness of the compensation strategy.

Activity 2

The compensation strategy is periodically reviewed to determine whether it needs to be revised.

1. The review is organized by the individual(s) assigned responsibility for coordinating compensation activities across the organization.

2. Individuals are involved in the review if and where appropriate.

3. Revision of the compensation strategy is considered when:
   - ❑ it is not having the intended motivational effect,
   - ❑ it does not reflect current business conditions,
   - ❑ it creates inequities,
   - ❑ current practices are not competitive with benchmark data from similar organizations, or
   - ❑ better compensation concepts have been identified.

4. The decision to revise the compensation strategy is reviewed with executive management.

Activity 3

Where appropriate, individuals are involved in developing or revising components of the compensation strategy.

**Activity 3
(continued)**

> Involving individuals in developing or revising the compensation strategy is beneficial in:
> - gaining insights into the most effective compensation strategies,
> - determining perceived fairness of the strategy, and
> - generating buy-in and support for the strategy.
>
> They can be involved either as an individual or as a member of a committee representing the workforce or a component of the workforce.

1. Individuals can provide inputs to the compensation strategy regarding:
   - ❑ benefits and drawbacks of current compensation vehicles,
   - ❑ criteria for determining or adjusting compensation,
   - ❑ fairness of the compensation strategy, and
   - ❑ methods for administering compensation.

2. Individuals can review a revised compensation strategy with regard to:
   - ❑ impact of proposed changes on motivation and performance,
   - ❑ fairness of proposed changes, and
   - ❑ most effective ways to initiate and administer the changes.

Activity 4

A compensation plan is prepared on a periodic basis for administering the compensation strategy.

The compensation plan typically includes:

1. The financial data needed for administering the compensation strategy.

2. The schedule of events and responsibilities for those involved in administering the compensation strategy.

3. How the methods described in the compensation strategy will be applied in making compensation decisions.

4. How and when the compensation decisions will be reviewed.

Activity 5   **The compensation strategy is communicated to the workforce.**

1. Information typically communicated to the workforce includes:
    ❑ strategic basis and structure of the compensation strategy,
    ❑ methods for maintaining equity within the compensation system, and
    ❑ events that result in changes to compensation.

2. Whenever the compensation strategy is changed, the changes are communicated to the workforce.

Activity 6   **Each individual's compensation package is determined through a documented procedure that is consistent with the organization's compensation policy, strategy, and plan.**

The procedure typically specifies:

1. How financial resources will be allocated to units for assignment to individual compensation packages.

2. Who will make decisions that allocate compensation resources to units and to the individual's compensation packages.

3. How criteria will be applied in making decisions for individual compensation packages.

4. How compensation decisions will be reviewed and approved before being communicated to individuals.

5. How compensation decisions will be communicated to individuals.

6. How individuals may address issues related to their compensation packages.

Activity 7   **Compensation activities are performed by responsible individuals in accordance with a documented procedure.**

1. Compensation adjustments are determined by the responsible individuals based on criteria established in the compensation policy, strategy, and plan.

Activity 7   2. Adjustments to compensation can be made on an exception basis
(continued)   when required by business necessity with appropriate approval.

> Examples of exceptions for adjustments may include:
> – serious inequities, or
> – retention of undervalued skills.

Activity 8   **Decisions regarding an individual's compensation package are
                          communicated to the individual.**

Activity 9   **Responsible individuals periodically review compensation
                          packages for all those whose compensation they administer; and
                          they take action on discrepancies from the organization's policy,
                          strategy, or plan.**

Measurement and analysis

Measurement 1   **Measurements are made and used to determine the status of
                          compensation activities within each unit.**

> Examples of measurements include:
> – total and projected compensation,
> – growth in compensation,
> – effects of criteria on compensation,
> – compensation by position types,
> – compensation by vehicle type,
> – extent of compensation inequities, and
> – timeliness and efficiency of compensation activities.

Measurement 2   **Aggregate trends in compensation activities and decisions are
                          measured at least annually.**

**Measurement 2
(continued)**

Examples of trends to be reviewed include:
- compensation versus market by position,
- workforce perceptions regarding compensation practices and equity,
- growth in compensation over time, and
- compensation versus individual, unit, and/or organizational performance.

Verifying implementation

Verification 1

A responsible individual(s) verifies that compensation activities are conducted according to the compensation plan and the organization's documented policies.

These reviews verify that:

1. Compensation activities comply with all relevant laws and regulations, and with the organization's policies and stated values.

2. Compensation activities are performed according to the organization's plans and selected methods.

3. Noncompliance items are handled appropriately.

4. All actions related to compensation activities are periodically reviewed to ensure that they conform to documented policies.

Verification 2

Executive management periodically reviews the organization's compensation activities to determine if they comply with its documented policies and compensation plan.

These reviews verify:

1. The structure and growth of compensation.

2. Progress in the performance of planned compensation activities.

3. Results from reviews of compensation practices against the organization's policies and stated values.

4. Status of resolution for noncompliance issues.

5. Trends related to compensation, both internal and external to the organization.

People
Capability Maturity Model

Level 3: Defined

The key process areas at the Defined level address organizational issues. The organization identifies its core competencies and plans, and tailors and executes its defined workforce practices to enhance its capabilities in the core competencies required by its business environment. The organization tailors its workforce activities for developing and rewarding these core competencies. Career development activities are undertaken and a participatory culture is nurtured.

Key process areas

Knowledge and Skills Analysis

A key process area for Level 3: Defined

The purpose of Knowledge and Skills Analysis is to identify the knowledge and skills required to perform core business processes so that they may be developed and used as a basis for workforce practices.

Knowledge and Skills Analysis involves identifying the business processes in which the organization must maintain competence, developing profiles of the knowledge and skills needed to perform these business functions, maintaining a knowledge and skills inventory, and identifying future knowledge and skill needs.

Business functions are evaluated to determine the core competencies the organization must maintain to sustain its business capability. Business processes constituting these functions are analyzed to identify the knowledge and skill profiles underlying each core competency. These profiles are periodically reassessed to ensure that they are current with the actual knowledge and skills required by the organization's business processes. The organization maintains an information base of these profiles. Anticipated changes in processes or technologies are analyzed to determine their implications for future knowledge and skill requirements.

The analysis of core competencies occurs at the organizational level and is of long-term concern to executive management and those responsible for coordinating workforce activities across the organization. Knowledge and skill profiles are used at the unit level in performing workforce activities described in the Staffing, Training, Performance Management, Competency Development, Competency-Based Practices, and other key process areas.

Goals

Goal 1   The core competencies required to perform the organization's business processes are known.

Goal 2   Knowledge and skills profiles exist for each business process.

Goal 3   Core competencies are updated for anticipated future needs.

Commitment to perform

Commitment 1   The organization follows a documented policy for analyzing its knowledge and skills requirements.

This policy typically specifies that:

1. Knowledge and skills analysis serve the business objectives and stated values of the organization.

2. The knowledge and skills required to perform the organization's business processes (including technical, managerial, and administrative activities) are identified.

3. A list of the core competencies on which to base the workforce activities is maintained and revised, as necessary.

4. Knowledge and skills analysis activities will be conducted on a periodic and event-driven (as needed) basis to maintain and update the knowledge and skill profiles.

5. An inventory of the knowledge and skills profiles in each of the organization's core competencies is maintained.

6. There are defined procedures for maintaining and using the inventory, including who has access and for what purposes.

Commitment 2   An organizational role(s) is assigned responsibility for coordinating knowledge and skills analysis activities across the organization.

Ability to perform

Ability 1   The organizational role(s) assigned responsibility for coordinating knowledge and skills analysis activities is staffed.

Ability 2   Descriptions of the organization's business processes are available for analysis.

Ability 3   Adequate resources and funding are provided for the planned knowledge and skills analysis activities.

1. Experienced individuals who have expertise in knowledge and skills analysis are made available.

    > Examples of individuals who can contribute to knowledge and skills analysis include:
    > - human resources professionals,
    > - training staff,
    > - members of the software engineering process group,
    > - managers,
    > - business strategists, and
    > - instructional designers.

2. Tools for supporting knowledge and skills analysis activities are made available.

    > Examples of tools to support knowledge and skills analysis include:
    > - task analysis tools,
    > - position analysis questionnaires,
    > - skill analysis inventories, and
    > - knowledge acquisition and engineering tools.

**Ability 3
(continued)**

3. Time, resources, and needed access to staff for analyzing business tasks and processes are made available.

Ability 4

All individuals performing knowledge and skills analysis are trained in relevant analysis methods and techniques.

Activities performed

Activity 1

The core competencies that the organization must develop and maintain to perform its business functions are identified.

A *competency* is an underlying characteristic of an individual that is causally related to effective and/or superior performance, as determined by measurable, objective criteria, in a job or situation [adapted from Spencer93, p. 9].

A *core competency* represents the knowledge and skills needed within the workforce to perform an important business function of the organization. A core competence can be stated at a very abstract level, such as a need for a core competence in software engineering. Core competencies can also be decomposed to more granular capabilities, such as core competencies in designing avionics software, testing switching system software, or writing user manuals and training for reservations systems. A core competence can be decomposed into the specific knowledge and skills required to perform the business processes underlying the business function for which the competency is maintained.

1. The business functions that implement the organization's mission and strategy, and the functions required to support them are identified.

2. The competencies the organization must develop and maintain to perform these business functions are identified as core competencies.

3. The results of knowledge and skills analyses are evaluated to identify any core competencies not previously identified.

Activity 2   **Profiles of the knowledge and skills underlying each of the organization's core competencies are developed.**

1. A plan is developed for knowledge and skills analysis activities that typically includes:
    ❑   the core competencies and other business processes to be analyzed;
    ❑   the knowledge and skills analysis activities to be performed;
    ❑   the schedule for knowledge and skills analysis activities;
    ❑   the individuals or groups responsible for knowledge and skills analysis activities;
    ❑   the resources and effort required, including access to the staff; and
    ❑   the process for review and approval of the plan by all parties affected by knowledge and skills analysis activities.

2. A method is selected for performing knowledge and skills analyses.

    > Examples of methods for knowledge and skills analysis include:
    > –   position analysis,
    > –   critical incident interviews,
    > –   behavioral event interviews,
    > –   process analysis and engineering,
    > –   task analysis,
    > –   knowledge acquisition and engineering, and
    > –   analysis of skill needs.

3. The organization defines the unit for decomposing work for the purpose of analyzing knowledge and skills.

    > Examples of units for decomposing work include:
    > –   work breakdown structures,
    > –   tasks or activities (managerial and technical),
    > –   processes, and
    > –   other work decompositions.

4. Relevant work descriptions are identified for analysis.

**Activity 2
(continued)**

Examples of work descriptions selected for the analysis may include:
- position responsibilities,
- tasks or activities,
- business processes,
- group activities, and
- other categories into which work is organized.

5. The knowledge and skills required to perform defined business processes and work tasks are identified.

Knowledge is defined as the information and understanding that someone needs to have to perform a task successfully. *Skills* are defined as the performance abilities that must be developed to perform a task or activity successfully. Skills may involve behaviors that directly accomplish the task or that provide the support of or coordination with others who help to accomplish tasks.

Examples of knowledge and skills underlying a broadly defined core competence in software engineering may include:
- knowledge of the requirements and system behaviors within a domain of application such as banking, avionics, medical devices, reservations, telecommunications, or word processing;
- skills in requirements engineering;
- skills in software architecture;
- skills in designing computer programs;
- skills in usability analysis and evaluation;
- knowledge of a domain-specific software architecture;
- knowledge of specific computer architectures,
- skills in using computer-aided software engineering (CASE) tools;
- skills in using one or more programming languages such as Ada, C++, Visual Basic, or Assembler;
- skills in software testing;
- skills in software quality assurance;
- knowledge of configuration management procedures;
- skills in software process improvement;
- skills in performing a defined software process; and
- skills in performing effectively within a programming team.

**Activity 2
(continued)**

6. Individuals are involved in analyzing the knowledge and skills required to perform their responsibilities.

7. A knowledge and skills profile is defined for each business process, core competency, or other category into which the organization decomposes its work processes.

> A *knowledge and skills profile* is a description of the knowledge and skills required to perform an activity, process, or position.

Activity 3

An inventory of knowledge and skill profiles is maintained.

1. Knowledge and skills profiles are documented and maintained in an information base that is designed for use in supporting and performing workforce activities.

2. Changes to the knowledge and skills profiles are controlled according to a formal change procedure.

Activity 4

Knowledge and skills profiles are reevaluated on a periodic or event-driven basis.

1. Knowledge and skills profiles are periodically analyzed against the actual work of individuals and/or groups to determine their accuracy.

2. Changes in work methods, processes, or technologies are analyzed on an event-driven basis to determine whether related knowledge and skills profiles need to be updated.

3. Needed changes to knowledge and skills profiles are made according to a documented change procedure.

Activity 5

Core competencies are reevaluated on a periodic and event-driven basis.

1. Core competencies are periodically analyzed against knowledge and skills profiles to determine if they continue to reflect the competencies necessary to perform the organization's business processes.

2. Changes in knowledge and skills profiles are evaluated to determine if the descriptions of core competencies need to be revised.

**Activity 5
(continued)**

3. Changes in products, processes, or technology are assessed as necessary to determine additions, modifications, or deletions to the core competencies required to accommodate them.

4. Action is taken to update the description of core competencies based on the results of periodic or event-driven reanalysis.

5. Changes in the description of core competencies are submitted as input to the development of strategic and near-term workforce plans.

> Typical changes may include:
> - new knowledge and skills that must be developed or acquired,
> - changes in existing knowledge and skills,
> - changes in the number of people that will need to possess particular knowledge and skills, and
> - knowledge and skills that are outdated or will no longer be needed.

Measurement and analysis

Measurement 1

Measurements are made and used to determine the status of knowledge and skills analysis activities within each unit and across the organization.

> Examples of measurements include:
> - amount of time spent in knowledge and skills analysis activities,
> - number of people involved in knowledge and skills analysis,
> - number of profiles created,
> - number of core competencies identified,
> - effectiveness of meeting milestones in knowledge and skills analysis activities,
> - effectiveness of achieving the objectives of knowledge and skills analysis activities, and
> - period between updates of knowledge and skills analyses.

Measurement 2   **Measurements are made and used to determine the quality of knowledge and skills profiles.**

> Examples of measurements of the quality of knowledge and skills profiles include:
> - density of knowledge and skill descriptions in each profile,
> - frequency and range of uses of the information base containing knowledge and skills profiles,
> - extent that core competencies are used in workforce activities, and
> - number of revisions made to knowledge and skills profiles.

Verifying implementation

Verification 1   **A responsible individual(s) verifies that knowledge and skills analysis activities are conducted according to plan and the organization's documented policies.**

These reviews verify that:

1. Knowledge and skills analysis activities comply with the organization's policies and stated values.

2. Noncompliance items are handled appropriately.

3. All actions related to the development and use of knowledge and skills descriptions are periodically reviewed to ensure they conform to documented policies.

4. Knowledge and skills profiles are consistent with the existing and anticipated organizational conditions and needs.

Verification 2   **The organization's knowledge and skills analysis activities are periodically reviewed by executive management.**

These reviews verify the:

Verification 2 (continued)

1. Appropriateness of knowledge and skills analysis activities.

2. Progress in the performance of planned knowledge and skills analysis activities.

3. Results from reviews of knowledge and skills analysis plans against the organization's stated values and appropriate policies.

4. Status of resolution for noncompliance issues.

Verification 3

The definition and use of data on knowledge and skills are periodically audited.

Workforce Planning

A key process area for Level 3: Defined

The purpose of Workforce Planning is to coordinate workforce activities with current and future business needs at both the organizational and unit levels.

Workforce Planning involves developing a strategic workforce plan that sets organization-wide objectives for competency development and workforce activities, and developing near-term plans to guide the workforce activities of each unit.

The workforce planning process begins by identifying future competency and workforce needs of the organization. These needs are assessed from anticipated future developments in the business and its products, services, markets, work technologies, and business processes. A plan is created for the long-term development of each competency needed by the organization. A strategic workforce plan is created by integrating these competency development plans and determining how the needed competencies will be provided over time. This plan sets long-term objectives for workforce activities to meet documented workforce needs.

Near-term workforce plans are developed periodically at both the organizational and unit levels. These plans set specific near-term objectives for performing workforce activities that satisfy both long-term strategic workforce objectives and the current needs of the business and each unit. Succession plans are developed for each key position in the organization. Performance against these plans is periodically checked and reported at the appropriate level.

Goals

Goal 1   The organization develops a strategic plan for long-term development of the competencies and workforce needed for its business operations.

Goal 2   Near-term workforce and competency development activities are planned to satisfy both current and strategic workforce needs.

Goal 3   The organization develops talent for each of its key positions.

Goal 4   The organization tracks performance in achieving its strategic and near-term workforce development objectives.

Commitment to perform

Commitment 1   The organization follows a documented policy in developing and updating its strategic and near-term workforce plans.

The policy typically specifies that:

1. Workforce planning serves the business objectives and stated values of the organization.

2. The strategic and near-term workforce plans support the organization's business strategies and operating objectives.

3. The core competency needs of the organization can be traced to requirements levied by its current and anticipated business processes, technologies, and activities.

4. Responsibilities for initiating, conducting, and approving the strategic and near-term workforce plans are defined and assigned.

**Commitment 1
(continued)**

5. The frequency with which the strategic and near-term workforce plans are developed and revised is defined.

6. Appropriate procedures will be defined, documented, and used for:
   - ❏ developing the strategic workforce plan.
   - ❏ creating development plans for each core competency.
   - ❏ reviewing and approving strategic and near-term workforce plans.
   - ❏ basing all relevant workforce activities on the strategic and near-term workforce plans.
   - ❏ correcting and amending the strategic and near-term workforce plans.
   - ❏ reviewing the compliance of workforce activities with the strategic and near-term workforce plans.
   - ❏ documenting the strategic and near-term workforce planning process and results.
   - ❏ communicating the strategic and near-term workforce plans throughout the organization.

Commitment 2   **An organizational role(s) is assigned responsibility for coordinating strategic and near-term workforce plans.**

Ability to perform

Ability 1   **The organizational role(s) assigned responsibility for strategic and near-term workforce planning are staffed.**

Ability 2   **Strategic and operational business objectives are made available for developing strategic and near-term workforce plans.**

Ability 3   **The organization's core competencies have been identified.**

Ability 4   **Adequate resources and funding are provided for developing, maintaining, and executing the strategic and near-term workforce plans.**

1. Experienced individuals who have expertise in the organization's talent needs are available for developing the strategic workforce plan.

    Examples of individuals with expertise relevant to workforce planning include:
    -   human resources staff,
    -   training and other development staff,
    -   product and/or technology planning staff, and
    -   executive management.

2. Tools for supporting strategic and near-term workforce planning activities are made available.

    Examples of tools to support workforce planning include:
    -   planning tools,
    -   spreadsheets,
    -   effort estimating tools,
    -   knowledge and skills analysis tools, and
    -   other workforce analysis and planning tools.

3. The strategic workforce plan is made available to those responsible for planning each unit's workforce management activities.

4. Time and resources for pursuing activities in support of strategic and near-term workforce objectives are made available.

Ability 5   **All individuals who are involved in developing or executing strategic and near-term workforce plans are given guidance and/or training for performing their responsibilities.**

> Examples of appropriate guidance and/or training may include:
> - appropriate strategic assignments,
> - training in long-range planning,
> - training in analyzing knowledge and skill needs,
> - training in developing near-term plans, and
> - training in executing and tracking near-term plans.

Activities performed

Activity 1   **The strategic competency and workforce needs of the organization are documented.**

1. The strategic competency needs of the organization are developed from inputs identifying the knowledge and skills needed to conduct the organization's future business activities.

> Examples of relevant inputs concerning strategic competency needs include:
> - the organization's business objectives and capabilities,
> - the organization's knowledge and skills profiles,
> - anticipated business processes and technologies,
> - anticipated working behaviors and environments,
> - data from benchmarking activities, and
> - anticipated changes in laws and regulations.

2. An understanding of the organization's strategic needs relative to each core competency is documented.

**Activity 1
(continued)**

> Examples of information that may be relative to each core competency include:
>
> - how the knowledge and skills composing the competency are related to and required by business processes and activities,
> - how the competency integrates with competencies required by other business processes and activities,
> - what business measures indicate the effectiveness with which the competency is being performed, and
> - how changes in business processes and functions may change the defined knowledge and skills composing the competency.

3. The organization's current capability for performing each competency is assessed and documented as a baseline for determining future development needs within the workforce. The current capability is determined by:

   ❑ the number of people currently possessing the competency,

   ❑ the current level of knowledge and skill exhibited by the people possessing the competency,

   ❑ the number of people in the process of developing the competency, and

   ❑ the development resources and activities in place for producing the competency.

4. The workforce needs of the organization are developed from inputs identifying the number of people who possess different competencies that the organization will need to conduct its future business activities.

> Examples of relevant inputs concerning strategic workforce needs include:
>
> - the organization's anticipated business objectives and capabilities,
> - anticipated future requirements in the organization's core competencies,
> - effort requirements for future business processes and technologies,
> - anticipated markets and revenues, and
> - anticipated talent needs and sources.

Activity 1 (continued)

5. Strategic competency and workforce needs are identified by those having knowledge of the organization's future business needs.

> Examples of people with knowledge of the organization's future business needs include:
> - executive and line managers,
> - experienced individuals,
> - technologists,
> - strategic planners,
> - marketing specialists,
> - human resources professionals,
> - customer representatives, and
> - external consultants.

6. Strategic competency and workforce needs are documented at both the unit and organizational levels.

> Strategic competency and workforce needs cannot be developed in a strictly top-down or bottom-up fashion. Although organizations should aggregate the anticipated competency and workforce needs of units, significant changes in the processes or technologies used to perform work can result in units being created, eliminated, or radically reorganized. Therefore, a component of strategic competency and workforce planning must be more than a simple aggregation of the units' needs.

Activity 2

For each of the organization's core competencies, a competency development plan is produced.

1. The development plan for each of the organization's core competencies is based on:
   - ❏ the organization's current level of capability in each of its core competencies,
   - ❏ the strategic competency needs of the organization, and
   - ❏ the organization's established competency development activities.

2. The competency development plan for each of the organization's strategic core competencies includes:

**Activity 2
(continued)**

❏ the anticipated number of people with the needed competency by
specified dates,

❏ how the number of people with the competency will be developed
and/or provided,

Examples of mechanisms through which people with a competence can
be developed or provided include:
- hiring individuals with the competence,
- acquiring an external organization with the competence,
- developing the competence through training,
- motivating the competence through career development and
competence-based practices,
- bringing in consultants,
- hiring contractors with the competence, and
- outsourcing the work.

❏ the internal workforce activities that need to be performed to
develop the competencies,

❏ the resources needed to perform the internal workforce activities
needed for developing and maintaining the competencies,

❏ how competencies will be maintained or enhanced over time, and

❏ the rate of change in the knowledge and skills required to provide
the necessary competencies to support the organization's
anticipated business activities.

3. The development plan for each of the organization's core
competencies is reviewed on a periodic and event-driven basis and
updated or revised as necessary.

4. Competency development plans undergo review by all affected
parties and are approved by executive management.

Examples of parties affected by the development plan for each of the
organization's core competencies include:
- those responsible for coordinating workforce activities across the
organization;
- those responsible for performing and reporting workforce activities,
especially those related to competency development; and
- those responsible for units or groups.

Activity 2
(continued)

5. The development plans for the organization's core competencies form a partial basis for the organization's strategic and near-term workforce plans.

Activity 3

A strategic workforce plan is developed and periodically revised.

The strategic workforce plan:

1. Is developed using a documented procedure that specifies the:
    - ❑ schedule for performing the workforce planning activities,
    - ❑ individuals or groups responsible for different strategic workforce planning activities,
    - ❑ resources required for the planning activities, and
    - ❑ process for review and approval by all parties affected by strategic workforce planning activities and by executive management.

2. Integrates the development plans for each of the organization's current and anticipated core competencies.

3. Documents the organization's decisions regarding the mechanisms through which core competencies will be developed and/or provided.

4. Provides long-term requirements for growth or shrinkage in the organization's core competencies and for guiding the development of competency-based practices.

    > Examples of strategies for developing core competencies include:
    > – developing specialists within the competency,
    > – providing minimal training to all individuals to achieve core competency,
    > – growth through graduated career opportunities,
    > – cross-training selected individuals, and
    > – training selected groups within the units.

5. Provides guidance for near-term workforce planning.

6. Includes descriptions of anticipated changes in the organization required to attract, develop, motivate, and retain the talent needed by the organization.

**Activity 3
(continued)**

> Examples of changes in the organization include changes to the:
> - workforce practices,
> - working conditions or arrangements,
> - learning technologies,
> - structure of the organization,
> - technologies through which work is performed, and
> - location of the work.

7. Includes a risk assessment of the organization's ability to attract, recruit, and retain the talent that will be needed for conducting the organization's future business.

8. Is revised periodically to reflect changes in the business.

Activity 4

Near-term workforce plans are developed to guide workforce activities in each unit.

Near-term workforce plans:

1. Are designed to satisfy the near-term workforce planning objectives of units, while at the same time supporting the long-term strategic competency and workforce objectives of the organization.

> Examples of near-term planning objectives include:
> - determination of unit staffing, training, and other unit needs;
> - aggregation of unit staffing and training needs to the organizational level; and
> - planning workforce activities to satisfy staffing, training, and other workforce needs at the organizational level.

2. Are developed using a documented procedure that specifies the:
   - ❑ schedule for performing these planning activities,
   - ❑ individuals or groups responsible for producing the near-term workforce plans for each unit,
   - ❑ resources for producing the near-term workforce plans, and
   - ❑ process for review and approval by all parties affected by near-term workforce plans.

**Activity 4
(continued)**

3. Are developed by those accountable for workforce activities within each unit working with those responsible for aggregating unit plans to higher organizational levels.

4. Identify and document the workforce needs of the unit for the next near-term planning period.

5. Plan and document the unit- and organizational-level activities required to support these near-term workforce needs.

> These activities include all of workforce responsibilities initiated in the key process areas at Level 2, in addition to new responsibilities developed at Level 3. Examples of unit-level workforce activities include:
> - staffing anticipated open positions,
> - succession planning,
> - activities for increasing the unit's level of core competencies in addition to any training required for performing the specific assignments made in executing the unit's business activities,
> - training to be delivered,
> - career development activities,
> - changes in compensation and anticipated rewards,
> - improvements to the work environment, and
> - other needed human resources activities.

> Examples of organization-level activities include:
> - performing organizational recruiting activities,
> - organizing training delivery,
> - developing career opportunities,
> - preparing compensation and reward plans,
> - making improvements to the work environment, and
> - other needed human resources activities.

6. Identify, assess, and document the risks associated with the near-term workforce plans.

7. Record workforce planning data.

Activity 5   **The organization develops succession plans for its key positions.**

> *Succession plans* are developed for key positions to ensure that
> qualified individuals with the required knowledge and skills are
> always available to perform the position's responsibilities.

1. Key positions are identified.

2. Key position profiles are developed that provide a description of
   each position, the competencies required to perform its
   responsibilities, and critical success factors.

3. A candidate pool for each key position is developed.

4. Performance management, training, career development, and similar
   development activities for willing candidates are based in part on
   succession planning objectives.

Activity 6   **The organization's performance in meeting the objectives of its
                        strategic and near-term workforce plans is tracked.**

1. Executive management periodically reviews the status of the
   organization's performance against its strategic and near-term
   workforce plans.

2. If progress against objectives deviates significantly from the strategic
   and near-term workforce plans, corrective action is taken.

> Examples of corrective action include:
> – taking specific actions to bring results into compliance with the
>   objectives of the strategic or near-term workforce plan;
> – reviewing near-term workforce plans to ensure that they comply
>   with strategic objectives and making plan revisions when
>   necessary; and
> – revising the strategic workforce plan.

Activity 7   **Each unit's performance in meeting the objectives of its near-
                        term workforce plans is tracked.**

**Activity 7
(continued)**

1. Each unit periodically reviews the status of its performance against its near-term workforce plan.

2. The progress of each unit in executing its near-term workforce plan is periodically reviewed at the organizational level.

3. Corrective actions are taken when results deviate significantly from objectives in the near-term workforce plan.

> Examples of corrective action include:
> - taking specific actions to bring results into compliance with the unit's near-term workforce plan, and
> - reviewing a unit's near-term workforce plan against current unit performance and organization's near-term plans to determine if revisions are necessary.

Measurement and analysis

Measurement 1

Measurements are made and used to determine the status of strategic and near-term workforce planning activities across the organization.

> Examples of workforce planning measurements include:
> - time spent in strategic and near-term workforce planning,
> - number of people involved in strategic and near-term workforce planning,
> - effectiveness of meeting milestones in strategic and near-term workforce planning,
> - effectiveness of achieving the objectives of the strategic workforce plan,
> - effectiveness of meeting objectives of the near-term workforce plans at the organizational and unit levels,
> - number of revisions made to strategic and near-term workforce plans, and
> - length of time between strategic and near-term workforce planning cycles.

Measurement 2 Measures of strategic and near-term workforce planning are collected and aggregated at the organizational level.

1. A historical database of performance criteria and performance data is maintained.

2. Workforce planning data are periodically analyzed to determine trends.

Verifying implementation

Verification 1 A responsible individual(s) verifies that strategic and near-term workforce planning activities are conducted according to plan and the organization's documented policies.

These reviews verify that:
1. Strategic and near-term workforce planning activities comply with the organization's policies and stated values.

2. Noncompliance items are handled appropriately.

3. Strategic and near-term workforce plans are kept current and reflect existing and anticipated organizational conditions and needs.

Verification 2 Executive management periodically reviews the organization's strategic and near-term workforce planning activities for compliance with the organization's documented policies.

These reviews verify the:
1. Appropriateness of strategic planning activities.

2. Appropriateness of near-term planning activities at the organizational and unit levels.

3. Progress in planning and performing the planned strategic and near-term workforce planning activities.

4. Results from reviews of strategic and near-term workforce plans against the organization's stated values and appropriate policies.

5. Status of resolution for noncompliance issues.

6. Trends in near-term plan results compared to strategic workforce objectives.

Competency Development

A key process area for Level 3: Defined

The purpose of Competency Development is to constantly enhance the capability of the workforce to perform their assigned tasks and responsibilities.

Competency Development involves establishing training and other development programs in each of the organization's core competencies.

The core competencies identified in Knowledge and Skills Analysis and Workforce Planning provide the foundation for the organization's development and training program. Development activities are designed to raise the level of knowledge and skill in the organization's current and anticipated core competencies. The organization maintains standards for the quality of the training and development activities offered its workforce. Each individual's development plan is updated with the individual's current level of knowledge and skill. Each individual sets objectives for development in one or more of the core competencies of the organization.

Goals

Goal 1   The organization knows its current capability in each of the core competencies required to perform its business processes.

Goal 2   The organization develops capabilities in its core competencies.

Goal 3   Individuals develop their knowledge and skills in the organization's core competencies.

Commitment to perform

Commitment 1   **The organization follows a documented policy for developing the core competencies required to perform its business processes.**

This policy typically specifies that:

1. Competency development activities serve the business objectives and stated values of the organization.

2. Activities to increase the core competencies of the organization supplement activities to increase the knowledge and skills required to perform work in each unit.

3. The organization continuously develops knowledge and skills in each of its core competencies.

4. The organization ensures that effective methods for developing and maintaining core competencies are provided and used.

5. Progress in developing core competencies is tracked for:
   - ❑ all individuals,
   - ❑ each unit, and
   - ❑ the organization.

6. Human resources professionals are consulted to ensure that competency development activities comply with all relevant laws, regulations, and organizational policies.

Commitment 2   **An organizational role(s) is assigned responsibility for coordinating the organization's competency development activities.**

Ability to perform

Ability 1   **The organizational role(s) assigned responsibility for coordinating the competency development activities is staffed.**

Ability 2   **An individual(s) is assigned responsibility for ensuring that competency-development activities are performed in each unit.**

Ability 3   **Adequate resources, funding, and time are provided for the planned organization-wide and unit-specific competency development activities.**

1. Experienced individuals who have expertise in developing specific competencies (i.e., specific knowledge and skills) are made available for assisting in the development of core competencies.

2. Tools and other resources for supporting competency development activities are made available.

> Examples of tools to support competency development include:
> – training and tutorial materials,
> – self-study guides,
> – training facilities,
> – on-the-job training aids, and
> – descriptions of available training opportunities.

3. The organization's near-term workforce plan allocates a recommended amount of staff time to competency development activities.

4. Each unit's near-term workforce plan allocates a portion of each individual's time for competency development activities.

Ability 4 **Knowledge and skills profiles and a list of core competencies exist.**

> See the Knowledge and Skills Analysis key process area for a description of the practices to determine the knowledge and skills profiles and core competencies of the organization.

Ability 5 **Individuals conducting competency development activities have developed the necessary knowledge and skills to perform their responsibilities.**

1. Individuals assigned responsibility for counseling other individuals on training and professional development have received orientation in the opportunities provided for developing knowledge and skills in the organization's core competencies.

2. Individuals who provide training, mentoring, or other services for developing knowledge and skills have received adequate professional training in the knowledge and skills that they are responsible for developing.

Activities performed

Activity 1 **The competency development plans for each of the organization's core competencies form the basis for its competency development activities.**

> Refer to Activity 2 of the Workforce Planning key process area for practices regarding developing competency development plans.

Activity 2 **The organization tracks the knowledge and skills of its workforce in the organization's core competencies according to a documented procedure.**

**Activity 2
(continued)**

Examples of methods for tracking knowledge and skills in the core competencies include:
- training and mentoring records,
- performance management records,
- career planning information,
- awards and achievements,
- professional accomplishments,
- assessment centers, and
- information from the performance of business processes.

Examples of competency information that might be tracked include:
- distribution of knowledge and skill levels within each core competency;
- proficiency against core competencies;
- special skills, such as experience with specific programming languages, design methodologies, or specific applications or legacy systems;
- distribution of core competencies across the organization;
- rate of change in the distribution of knowledge and skills within each core competency; and
- proportion of the workforce with improvement plans in each core competency area.

This procedure typically specifies:

1. What information is to be collected and maintained.

2. How this knowledge and skills information will be used.

3. The legitimate purposes for which this information may be used.

4. How this information is to be represented and presented.

5. How confidentiality is to be established and maintained for this information.

6. Who may have access to this information and under what circumstances.

7. How this information is to be updated.

Activity 2 **(continued)**	8. How the completeness and accuracy of this information will be audited.

9. Restrictions on the use of the information.

10. Procedures by which individuals can review and correct their data.

Activity 3   **The organization establishes a program of training and development in its core competencies.**

1. Methods for developing the core competencies are identified.

2. Graduated training and development activities are defined for each core competency using approved methods.

> Examples of competency development activities for increasing the level of core competencies in the organization include:
> - formal classroom training,
> - courses of study at educational institutions,
> - degree programs,
> - licensing or certification programs,
> - guided self-study,
> - apprenticeship or mentoring,
> - just-in-time training,
> - other training activities,
> - recruiting objectives, and
> - career development planning.

3. The organization establishes standards for the learning activities included in the training and development of its core competencies.

4. All courses, learning materials, or other development activities are qualified against the organization's standards before being offered to the workforce.

5. Learning activities are periodically reviewed to:
   - ❑ ensure their compliance with established standards,
   - ❑ identify revisions that are needed in the standards, and
   - ❑ ensure effectiveness in developing competencies.

**Activity 3
(continued)**

6. Resources for delivering the training and development activities are identified and made available.

7. The training and development program is updated as changes are made to profiles of the organization's core competencies.

8. The graduated training and development activities in each core competency are communicated to those responsible for career counseling.

9. Training and development records are maintained at the organizational level.

Activity 4

Individuals in each unit receive training and development as needed in appropriate core competencies.

1. The responsible person ensures that each individual's personal development plan includes activities for increasing their knowledge and skills in appropriate core competencies.

> Refer to Activity 1 of the Career Development key process area for practices regarding developing and maintaining each individual's personal development plan.

2. The responsible person counsels individuals, as needed, about available training and development in relevant core competencies and how development in different competencies affects career directions.

> Development in core competencies may be oriented towards improved capability in an individual's current assignment, as well as towards developing capability in related competencies.

3. A waiver procedure is established and used to determine when individuals already possess the knowledge and skills composing one or more of the organization's core competencies.

4. Wherever possible, individuals will receive assignments that support the new competencies acquired through training.

Activity 5

The organization makes available to individuals information on the organization's core competencies and learning opportunities related to their development.

Activity 6

Individuals are actively involved in identifying and pursuing learning opportunities to enhance their capabilities in the organization's core competencies.

> Refer to the Career Development key process area for practices regarding each individual's role in his or her own personal development.

Measurement and analysis

Measurement 1

Measurements are made and used to determine the status of competency development activities within each unit and across the organization.

> Examples of measurements to determine the status of competency development activities include:
> - amount of time spent in developing knowledge and skills related to the organization's core competencies,
> - number of people involved in developing competency development activities, and
> - rate of progress in competency development activities.

Measurement 2

Measurements are made and used to determine the quality of various competency development activities.

**Measurement 2
(continued)**

Examples of measurements of the quality of competency development practices include:

- individual ratings of the effectiveness of each competency development method,
- level of knowledge and skill developed in each competency area through different development methods,
- performance-based evidence of increases in knowledge and skills in each core competency,
- results of certification programs where appropriate, and
- rate at which individuals requests access to different training programs or methods.

Verifying implementation

Verification 1

A responsible individual(s) verifies that competency development activities are conducted according to the competency development plan and the organization's documented policies.

These reviews verify that:

1. Competency development activities comply with the organization's policies and stated values.

2. Noncompliance items are handled appropriately.

3. All actions related to competency development activities are periodically reviewed to ensure they conform to documented policies.

4. Competency development methods and materials are consistent with the existing and anticipated conditions and needs of the organization.

Verification 2   **The organization's competency development activities are periodically reviewed by executive management.**

These reviews verify the:

1. Appropriateness of competency development activities at the organizational and unit levels.

2. Progress in performance of planned competency development activities.

3. Results from reviews of competency development plans against the organization's stated values and policies.

4. Status of resolution for noncompliance issues.

Verification 3   **The definition and use of data on competency development are periodically audited.**

Career Development

A key process area for Level 3: Defined

The purpose of Career Development is to ensure that all individuals are motivated and are provided opportunities to develop new skills that enhance their ability to achieve career objectives.

Career Development includes discussing career options with each individual, developing a personal development plan, tracking progress against it, identifying training opportunities, and making assignments that enhance career objectives.

A personal development plan is created and periodically updated for each individual. Progress against this plan is tracked and development opportunities are identified. Opportunities for training and other career-enhancing activities are made available. Individuals are encouraged to take an active role in defining and developing their skills and career development. A graduated set of career opportunities are defined along with criteria for promotion among them. Promotion activities are performed on a periodic and event-driven basis. Individuals are periodically counseled about career options, and opportunities for advancement are communicated to them. An effort is made to match work assignments with career objectives. The organization evaluates how well progress in meeting personal development plans is providing the skills that the organization anticipates it will need in the future.

Goals

Goal 1   Career development activities are conducted with each individual.

Goal 2   The organization offers career opportunities that provide growth in its core competencies.

Goal 3   Individuals are motivated to pursue career goals that optimize the value of their knowledge and skills to the organization.

Commitment to perform

Commitment 1   The organization follows a documented policy for its career development activities.

The policy typically specifies:

1. Career development activities serve the business objectives and stated values of the organization.

2. Documented procedures are developed to guide career development activities. These procedures typically specify:

   ❑ methods for identifying career options within the organization,

   ❑ procedures for discussing career options with each individual, and

   ❑ frequency of discussing career options with individuals.

Commitment 2   An organizational role(s) is assigned responsibility for coordinating career development activities across the organization.

Ability to perform

Ability 1

The organizational role(s) assigned responsibility for career development activities is staffed.

Ability 2

An individual(s) is assigned responsibility to ensure career development activities are performed within each unit.

> Examples of individuals who might be assigned responsibility for various career development activities within a unit include:
> - the unit manager or staff assistant,
> - a project or group leader,
> - an empowered team,
> - a member of the training staff, or
> - a member of the human resources group.

Ability 3

Adequate resources and funding are provided for implementing the planned career development activities.

1. When feasible, experienced individuals who have special expertise are made available for career development-related activities.

> Examples of contributions that could be made by those with special skills include:
> - designing graduated career opportunities,
> - developing career choice guidelines,
> - assessing development and career interests,
> - providing knowledge about career opportunities and growth within the organization, and
> - updating the descriptions of graduated career opportunities to reflect advances in work processes, products, or technologies.

Ability 3 (continued)

2. Tools and instruments to support career development activities are made available.

> Examples of tools and instruments include:
> - guidelines on career choices in the organization,
> - graduated career opportunity descriptions,
> - career interest inventories and scales, and
> - other testing techniques and materials.

3. Support for implementing career development activities is made available.

> Examples of implementation support include:
> - maintaining career development records,
> - maintaining graduated career paths, and
> - maintaining listings of open positions.

Ability 4

Individuals responsible for career counseling activities receive the training necessary to perform their responsibilities.

1. Those responsible for designing graduated career opportunities and criteria or providing professional interest or career assessments have received the professional training necessary to perform their responsibilities.

2. Those responsible for career development activities within a unit have appropriate training in
   - ❑ the organization's graduated career opportunities, and
   - ❑ methods for providing career advice.

> Examples of relevant methods in which individuals responsible for career development activities may be trained include:
> - methods for assessing and advising on career interests,
> - interpreting career guidance provided from other sources,
> - interviewing skills, and
> - career counseling methods.

Activities performed

Activity 1

A personal development plan is created and maintained for each individual.

> Examples of information in the personal development plan include:
> - career objectives,
> - career paths to achieve those objectives,
> - knowledge and skills identified in performance management activities to enhance performance in the current assignment,
> - skills needed to progress toward the career objectives,
> - potential next assignments,
> - skills required for potential next assignments,
> - plan for developing the skills required for potential next assignments, and
> - other development activities, such as professional growth.

1. The development plan is created jointly between each individual and the person responsible for his or her career counseling.

2. The development plan identifies development activities needed to accomplish the career objectives of the individual.

3. The development plan identifies training needs that support the career objectives of the individual, especially in the core competencies of the organization.

4. Opportunities for personal development other than training are identified and encouraged.

5. Possible work assignments that would support the individual's development needs are identified.

6. The development plan is updated periodically as changes occur in:

   ❏ the individual's career objectives;

   ❏ the knowledge, skills, and competencies needed for potential future assignments; or

   ❏ the career options available.

Activity 2   **Individuals actively identify and pursue learning opportunities that enhance their career options and capabilities in the organization's core competencies.**

1. Individuals are encouraged to accept responsibility for developing their capabilities and careers. They should take an active role in:
   ❑ performing against their personal development plan,
   ❑ identifying internal opportunities for development experiences, and
   ❑ pursuing external activities or training that enhance their knowledge and skills.

2. Individuals update the organizational records maintained on their knowledge and skills whenever they have completed significant development events or experiences.

> Refer to Activities 2 and 3 of the Competency Development key process area for practices regarding the development of the organization's knowledge and skills information base.

Activity 3   **The development activities of each individual are tracked against his or her personal development plan.**

1. Those responsible for career discussions periodically review individual performance against personal development plans.

2. Progress against the personal development plan is discussed during periodic performance management and/or career discussion sessions.

3. When performance deviates significantly from the personal development plan, potential corrective actions are evaluated.

> Examples of corrective actions include:
> – revising the schedule of development activities,
> – changing the development activities,
> – revising the career objectives, and
> – ensuring that development time is built into the individual's schedule.

Activity 4   **Trends across individual development plans and activities are periodically reviewed to determine whether organizational competency needs will be met.**

1. Individual development objectives and performance against them are aggregated to the unit and organizational levels.

2. Trends in the aggregated data are assessed to determine whether competency objectives recorded in strategic and near-term workforce plans are being met.

3. The organization takes corrective action to alter imbalances in its future competency needs.

> Examples of actions that might be taken to alter imbalances in the organization's future competency needs include:
> −   altering workforce practices such as recruiting, selection, compensation, recognition, or rewards to motivate development in certain competencies or career directions;
> −   offering additional training or experiences in certain competencies or career options; or
> −   recording imbalances as needs in future workforce planning activities.

Activity 5   **Assignments outside of normal work responsibilities that support an individual's development needs are provided as appropriate.**

> Examples of assignments outside of normal work responsibilities that may support the individual's development needs include:
> −   special tasks and temporary responsibilities,
> −   tasks forces or committees,
> −   problem resolution teams,
> −   time to pursue special interests or skills,
> −   process or quality improvement activities, or
> −   professional activities.

Activity 6   **The organization defines graduated career opportunities based on the core competencies required to perform its business.**

> Graduated career opportunities include not only promotion opportunities upwards within the organization, but also career broadening or lateral assignments to gain experience or increase the individual's capabilities in the organization's core competencies. Such opportunities may be in other units or in assignments to other organizations in the company. An organization may have any number or combination of graduated career opportunities.

> An example of a set of graduated career opportunities that involve both technical and management growth in software engineering might include a progression such as the following:
> – software librarian
> – support programmer
> – software engineer
> – senior software engineer
> – software team leader or project manager
> – software system architect or program manager
> – senior consulting software engineer or division manager
> – fellow or general manager
> – chief scientist or vice president

**Activity 6
(continued)**

1. The organization specifies the objectives it intends to achieve through establishing a program of graduated career opportunities.

> Examples of the intended objectives of graduated career opportunities include:
> - motivate individuals to develop the knowledge and skills required to execute the organization's business strategy,
> - ensure growth in the organization's core competencies,
> - reward individuals for growth in the core competencies of the organization,
> - enable individuals to expand their ability to serve the organization when their performance and capability justify greater responsibilities,
> - deploy talent in a manner most effective for the organization and its business strategy, and
> - steadily improve the organization's performance.

2. Graduated career opportunities are defined based on the characteristics and needs of the organization and graduated levels of capability in the organization's core competencies.

> Examples of characteristics and needs of the organization that may influence the definition of career opportunities include:
> - current and future products and services,
> - standard business processes and methods,
> - organizational structure and architecture,
> - corporate culture and climate,
> - availability of individuals with knowledge and skills in the organization's core competencies,
> - nature of the customer and business environment,
> - core competencies of the competition, and
> - professional practices within a knowledge and skills area.

**Activity 6
(continued)**

3. Several choices of graduated career opportunities are made available for career planning.

> Examples of choices among career opportunities include:
> - technical,
> - administrative,
> - managerial,
> - sales and marketing, and
> - a mixture of assignments across or within several career areas.

4. Criteria for advancing through graduated career opportunities are documented and communicated to the workforce.

> Examples of criteria for advancement through graduated career opportunities include:
> - knowledge and skills required at each graduated level;
> - demonstrated performance or accomplishments required for each graduated level;
> - potential to perform responsibilities successfully at each graduated level;
> - characteristic working styles required at each graduated level;
> - demonstrated impact on the group, unit, or organization required for each graduated level;
> - potential for developing additional knowledge and skills that are required for advancement to each graduated level; and
> - potential to affect others through performance of responsibilities at each graduated level.

5. Graduated career opportunities and related criteria are reviewed on a periodic basis to ensure they are defined in a way that serves the business strategy of the organization.

6. Graduated career opportunities and/or their related criteria are redefined as necessary to achieve their intended objectives.

Activity 7   **Career development objectives are based on the graduated career opportunities defined in the organization.**

1. Each individual is made aware of the organization's graduated career development opportunities and is counseled on how to prepare for the opportunities that they wish to pursue.

2. Each individual's personal development plan addresses growth in the core competencies and other knowledge and skills needed to prepare for selected career opportunities.

3. Career planning sessions with individuals result in adjustments in personal development plans to acquire the knowledge and skills needed to meet their career objectives.

4. Those responsible for career development activities continually identify opportunities to increase the core competencies and other knowledge and skills relevant to the career objectives of the individuals they advise.

5. Career objectives and personal development plans are periodically reviewed when changes are made to graduated career opportunities and/or related criteria.

6. Career objectives and personal development plans are altered as necessary when the graduated career opportunities and/or related criteria change.

Activity 8   **Career promotions are made in each area of graduated career opportunities based on a documented procedure.**

Each area in which a set of graduated career opportunities has been defined has a documented procedure for considering the promotion of qualified individuals. These procedures and promotional criteria may differ across career areas. The procedures typically specify:

1. The bases (i.e., frequency or other criteria) for initiating promotion activities within the area.

2. How individuals may apply or be nominated for promotion consideration.

3. How criteria for promotion are developed and approved.

4. How and by whom nominated candidates are to be evaluated.

**Activity 8
(continued)**

5. How and by whom promotional decisions are made and approved.

6. Which other workforce activities or practices are activated by the decision to promote an individual.

7. How appeals to promotional decisions can be made and how they are to be handled.

8. How often promotional criteria and procedures will be evaluated for improvements.

Measurement and analysis

Measurement 1   **Measurements are made and used to determine the status of career development activities within each unit.**

> Examples of measurements include:
> -   timeliness of career discussions,
> -   amount of training identified in development plans,
> -   number of career development plans documented,
> -   number of career planning sessions conducted, and
> -   rate of providing career development training.

Measurement 2   **Unit measures of career development status are collected and aggregated at the organizational level.**

1. A historical database of career development data is maintained.

2. Career development data are periodically analyzed to determine trends.

Verifying implementation

Verification 1 A responsible individual(s) verifies that career development activities are conducted according to the organization's documented policies.

These reviews verify that:

1. Career development activities comply with all relevant laws and regulations and with the organization's policies and stated values.

2. Career development activities are performed according to the unit's plans and selected methods.

3. All actions related to the development and implementation of career development plans are periodically reviewed to ensure that they conform to documented policies.

4. Noncompliance items are handled appropriately.

Verification 2 Executive management periodically reviews the organization's career development activities to determine if they comply with its documented policies.

These reviews verify the:

1. Progress in career development across the workforce against the business needs of the organization.

2. Progress in the performance of planned career development activities against plans.

3. Results from reviews of career development practices against the organization's stated values and appropriate policies.

4. Status of resolution for noncompliance issues.

5. Trends related to career options and growth.

Competency-Based Practices

A key process area for Level 3: Defined

The purpose of Competency-Based Practices is to ensure that all workforce practices are based in part on developing the knowledge and skills of the workforce.

Competency-Based Practices involves recruiting against knowledge and skill needs, basing selection methods on assessing the knowledge and skills of candidates, assessing job performance against the tasks and roles assigned to the position, and basing compensation at least in part on growth in knowledge and skills.

Both the organization and its units identify recruiting needs based in part on core competencies identified in Knowledge and Skills Analysis. The organization works with potential sources of qualified candidates to improve the relevant knowledge and skills of applicants. Selection methods are tailored to assess more carefully the knowledge and skills related to core competencies. Orientation is planned around the appropriate knowledge and skills both for the new position and for long-term development. Performance criteria are defined in relation both to current responsibilities and to long-term development in core competencies. Increases in compensation are partly based on growth in knowledge and skills. The compensation system is analyzed against the level of knowledge and skills identified in the organization in Competency Development. The organization works to focus its workforce practices on developing the capability of its workforce in relation to the organization's core competencies.

Goals

Goal 1

Workforce practices are tailored to motivate individuals and groups to improve their knowledge and skills in the core competencies of the organization.

Goal 2

Workforce activities are adjusted to support development in the core competencies of the organization.

Goal 3

Compensation and reward strategies are tailored to motivate growth in the core competencies of the organization.

Commitment to perform

Commitment 1

Organizational policies are updated to motivate capability development in the organization's core competencies.

These updated policies typically specify that:

1. Recruiting activities will focus on the best sources of candidates with strong capabilities or potential in the organization's core competencies.

2. The organization's workforce activities will be tailored to the knowledge and skills required by the organization's business processes.

3. Selection activities will be based in part on identifying candidates with the strongest capabilities and potential in the organization's core competencies.

4. Performance management will include activities and criteria designed to aid development in the organization's core competencies.

**Commitment 1
(continued)**

5. Recognition and reward activities will focus in part on motivating growth in the organization's core competencies.

6. Compensation strategies will focus in part on motivating development in the organization's core competencies.

7. All competency-based adjustments to workforce activities are reviewed by a human resources professional to ensure their compliance with all applicable laws and regulations governing these activities, and the organization's updated policies and stated values.

Commitment 2   **An organizational role(s) is assigned responsibility for coordinating the alignment of workforce practices with the core competencies of the organization.**

Ability to perform

Ability 1   **The organizational role(s) assigned responsibility for coordinating the alignment of workforce practices with core competencies of the organization is staffed.**

Ability 2   **Within each unit, an individual(s) is assigned responsibility for ensuring that workforce practices and activities are adjusted to motivate development in core competencies by all individuals and groups.**

Ability 3   **Adequate resources and funding are provided for the planned alignment of workforce practices with the core competencies of the organization.**

1. Experienced individuals who have expertise in workforce practices are available for aligning them with the core competencies of the organization.

2. Tools to support aligning workforce practices with the organization's core competencies are made available.

**Ability 3
(continued)**

> Example tools for aligning workforce practices with the organization's core competencies include:
> - information bases on sources for recruiting,
> - selection guides and aides,
> - performance management forms and guides,
> - training materials,
> - compensation and reward guides,
> - career planning guides and tools, and
> - other relevant workforce assets.

3. The near-term workforce plans of the organization and each unit include competency-based workforce activities that increase the core competencies of the organization.

4. Resources required to execute competency-based practices are made available.

Ability 4

The core competencies of the organization have been identified, and the availability of knowledge and skills in these competencies is known.

> Refer to the Knowledge and Skills Analysis and Competency Development key process areas for practices regarding identifying the organization's core competencies and developing the organization's capabilities in those competencies.

Ability 5

All individuals responsible for performing competency-based workforce activities are trained in the skills needed to perform them.

1. Individuals assigned responsibility for performing competency-based workforce activities have received training or orientation in the application of these practices to the development of the organization's core competencies.

2. Individuals assigned responsibility for designing competency-based workforce practices have received adequate professional training in the knowledge and skills required for performing their responsibilities.

Activities performed

Activity 1

Recruiting activities are planned and executed to satisfy the organization's requirements for core competencies.

1. Recruiting activities are tailored to satisfy both the organizational and unit objectives for growth in core competencies, in addition to the specific requirements of open positions.

> See Activity 1 of Workforce Planning for identifying the workforce needs of the organization. See Activity 2 of the Competency Development key process area for the practices dealing with organizational tracking of the knowledge and skills of its existing workforce. Ongoing organizational tracking of the knowledge and skills of the existing workforce can assist in tailoring recruiting activities.

2. The organization communicates its current and anticipated requirements for core competencies to likely sources of qualified candidates.

3. The organization establishes relationships with external sources willing to develop qualified candidates with knowledge and skills that match the organization's current and anticipated requirements for core competencies.

> Examples of relationships with sources of qualified candidates include:
> - periodic recruiting trips;
> - financial support for teaching, research, or collaborative projects;
> - providing facilities or equipment in support of teaching or research;
> - summer or part-time employment for faculty and/or students,
> - internships;
> - sabbatical opportunities for faculty;
> - providing lecturers on a temporary or sabbatical basis;
> - frequent interaction with educational institutions to track the development of the most qualified candidates;
> - career guidance to students; and
> - awards and other forms of recognition for outstanding students.

Activity 2   **Staffing decisions are based in part on developing careers through an appropriate set of graduated career opportunities.**

1. The individual development plans and career objectives of individuals are used as an input when selecting among candidates for open positions.

    > The selection process, especially for positions beyond entry level, should involve review of the development plans of qualified internal candidates to further develop and/or broaden their capabilities in the organization's core competencies. Thus, the staffing process becomes one mechanism for increasing the organization's capability in its core competencies.

2. Staffing decisions are made in part to achieve the competency-development goals and career objectives of qualified candidates.

3. The level of knowledge and skill evident in the performance of individuals is used as one of the bases for advancement through their career options.

Activity 3   **The organization selects the most qualified candidates based in part on their long-term potential for growth and performance in the organization's core competencies.**

1. Selection methods are tailored to consider selection criteria related both to organizational and unit objectives for growth in core competencies and to the specific requirements of an open position.

2. Selection criteria are developed that evaluate candidates against both the responsibilities of the current open position and their potential to develop careers that satisfy the organization's anticipated future requirements for core competencies.

3. The individual development plans and career objectives of individuals are used as input in selecting among candidates for open positions.

4. Selected candidates' orientation is designed to familiarize them both with the knowledge and skills required to perform their new position and with the core competencies of the organization.

Activity 4   **Work assignments are designed, in part, to enhance personal and career development objectives.**

1. Work assignments are developed through consultation with the individual who will be assigned the responsibility.

2. To the extent possible, work assignments will be designed to enhance:
   - ❑ the immediate development objectives in the individual's personal development plan,
   - ❑ the individual's growth in core competencies, and
   - ❑ the individual's career objectives.

3. The extent to which the work assignment actually enhances personal and career objectives should be discussed during performance management and related activities.

Activity 5   **Each unit's performance criteria include objectives for developing the core competencies required to perform its business activities.**

1. The objectives for developing core competencies included in each unit's near-term workforce plan are included in the unit's objective performance criteria.

2. Relevant portions of the unit's objective performance criteria for developing core competencies are included in the individual performance criteria of each person who is responsible for performing the unit's workforce activities.

Activity 6   **The documented performance criteria for each individual include objectives for developing additional capability in the organization's core competencies.**

1. Criteria related to some of the organization's core competencies are selected for inclusion in each individual's objective performance criteria.

**Activity 6
(continued)**

> Example bases for selecting among core competencies to include in a
> individual's performance criteria include:
> - relevance to current assigned responsibilities;
> - relevance to future business activities within the unit;
> - relevance to the career development plans of the individual;
> - contribution to growth in the core competencies of the group, unit, or
>   organization; and
> - importance to the organization's future requirements for core
>   competencies.

2. Some performance criteria for each individual are drawn from the
    individual's career development plan.

> Examples of performance criteria related to career development
> include:
> - increasing capability in one or more of the organization's core
>   competencies,
> - increasing capability in knowledge and skills that supplement the
>   organization's core competencies, and
> - assisting other members of the unit or organization in increasing
>   their capability in the organization's core competencies.

Activity 7   **The results of each individual's job performance are assessed in
                        part against evidence of developing capability in the
                        organization's core competencies.**

1. Formal performance feedback includes structured information about
    evidence of capability in the organization's core competencies.

2. The results of each individual's job performance are evaluated to
    assess the level of the individual's capability in the core competencies
    involved in his or her assigned responsibilities.

> Each individual's performance is assessed against his or her
> capabilities in the organization's core competencies in addition to other
> criteria specific to the individual's assignments.

**Activity 7
(continued)**

3. The results of each individual's job performance are evaluated to identify evidence of capability in core competencies not involved in his or her assigned responsibilities or performance criteria.

> Reasons for evaluating these other core competencies include information for counseling about additional career options and development opportunities.

4. Those responsible for ongoing communication about job performance provide feedback related to the individual's capability in the organization's core competencies.

5. Information about capability in the organization's core competencies is documented for use in planning development activities and career options for each individual.

Activity 8

The compensation system is designed in part to improve the relationship between workforce capability in the organization's core competencies and organizational performance.

1. The impact of the compensation system on the relationship between the workforce's capability in the core competencies and the organization's performance is periodically reviewed.

**Activity 8
(continued)**

Examples of relationships between the compensation system and the organization's core competencies include:

- ability to motivate growth in core competencies;
- ability to motivate the workforce to develop capability in scarce competencies;
- relationship of compensation levels to competency levels at the individual, group, unit, and organizational levels;
- relationship of compensation levels to the market value of similar competency levels in other organizations;
- ability to attract talent with knowledge and skills in the organization's core competencies;
- ability to retain talent with knowledge and skills in the organization's core competencies;
- ability to motivate the translation of capability in the organization's core competencies into performance; and
- ability of growth in the organization's core competencies to translate into increased performance at the organizational, unit, group, or individual levels.

2. The compensation system is designed in part to improve the relationship between the workforce's capability in the core competencies and the organization's performance.

Examples of improving the relationship between the workforce's capability in core competencies and the organization's performance include:

- motivating growth in core competencies,
- motivating growth in scarce competencies,
- attracting talent with knowledge and skills in the organization's core competencies,
- retaining talent with knowledge and skills in the organization's core competencies,
- motivating the application of knowledge and skills to improve performance, and
- motivating the spread of knowledge and skills to other individuals.

**Activity 8
(continued)**

3. The compensation system is administered in a way that optimizes its intended impact on the relationship between the workforce's level of capability in the organization's core competencies and organizational performance.

4. The compensation system is periodically reviewed to ensure that it achieves its intended impact on the relationship between the workforce's level of capability in the organization's core competencies and organizational performance.

5. The compensation system is revised when necessary to improve its impact on the relationship between the workforce's level of capability in the organization's core competencies and organizational performance.

Activity 9

Adjustments to each individual's compensation are partly designed to motivate development in the organization's core competencies and use these skills to improve performance at the individual, group, unit, and/or organizational levels.

1. Each individual's growth in the organization's core competencies and its impact on his or her performance is factored into the individual's compensation decision.

> Examples of competency-based factors influencing compensation decisions include:
> –   current capability in the organization's core competencies;
> –   development of capabilities in scarce competencies;
> –   successful completion of development plans;
> –   ability to translate capability in core competencies into performance at the individual, group, unit, or organizational levels; and
> –   contribution in helping or mentoring others to improve their knowledge and skills in the organization's core competencies.

2. The impact of development in the organization's core competencies on compensation is discussed with each individual.

**Activity 9
(continued)**

3. Each individual's compensation is periodically reviewed to ensure that compensation decisions and levels are consistent with objectives documented in the organization's strategic and near-term workforce plans.

Activity 10   **Recognition and rewards for growth in the organization's core competencies are provided when appropriate at the individual, group, unit, and organizational levels.**

Activity 11   **As core competencies change, the organization reevaluates its workforce policies and practices and adjusts them as needed.**

Measurement and analysis

Measurement 1   **Measurements are made and used to determine the status of tailoring workforce practices to develop the core competencies of the organization.**

> Examples of measurements include:
> -   amount of time spent in tailoring workforce activities to the organization's core competencies,
> -   number of people involved in tailoring workforce activities to the organization's core competencies, and
> -   rate of progress in tailoring the workforce activities to focus on the organization's core competencies.

Measurement 2   **Measurements are made and used to determine the quality of competency-based workforce practices.**

**Measurement 2
(continued)**

Examples of measurements of the quality of competency-based workforce practices include:

- staff ratings of the effectiveness of competency-based workforce practices;
- increased level of knowledge and skills resulting from competency-based recruiting, selection, and performance management practices;
- increased level of motivation and retention resulting from competency-based career planning, compensation, and reward practices; and
- indicators of the organization's increased efficiency in performing competency-based workforce activities.

Verifying implementation

Verification 1

A responsible individual(s) verifies that tailoring the organization's workforce practices to its core competencies is conducted according to the organization's documented policies.

These reviews verify that:

1. Competency-based workforce activities comply with all applicable laws and regulations and with the organization's policies and stated values.

2. Noncompliance items are handled appropriately.

3. All actions related to competency-based workforce activities are periodically reviewed to ensure that they conform to documented policies.

Verification 2

The organization's effectiveness in implementing competency-based workforce practices is periodically reviewed by executive management.

**Verification 2
(continued)**

These reviews verify the:

1. Appropriateness of competency-based workforce activities at the organizational and unit levels.

2. Progress in performing competency-based workforce activities.

3. Results from reviews of competency-based workforce activities against the organization's stated values and appropriate policies.

4. Status of resolution for noncompliance issues.

Participatory Culture

A key process area for Level 3: Defined

The purpose of a Participatory Culture is to ensure a flow of information within the organization, to incorporate the knowledge of individuals into decision-making processes, and to gain their support for commitments. Establishing a participatory culture lays the foundation for building high-performance teams.

Participatory Culture involves establishing effective communications among all levels of the organization, seeking input from individuals, involving individuals in making decisions and commitments, and communicating decisions to them.

Participatory Culture begins with establishing effective communication within workgroups and across the organization. Improving communication involves identifying needed information and developing ways to share it. Participation in decision making is established as an important workforce value of the organization. Decision-making processes are shifted down to lower levels of the organization where appropriate. Decision-making processes are defined or adopted that are appropriate for different types of decisions. Individuals are asked for input on decisions where appropriate. They are involved in making and signing off on commitments and in making decisions about their work. Management communicates about events and decisions that affect the workforce.

Goals

Goal 1   Communication activities are enhanced to improve the flow of information within the organization.

Goal 2   Decisions are made at the lowest appropriate level of the organization.

Goal 3   Individuals and groups participate in decision-making processes that involve their work or commitments.

Commitment to perform

Commitment 1   The organization's stated values encourage open communication and participation in decision making by individuals and groups.

Commitment 2   The organization follows a documented policy for its activities that support development of a participatory culture.

The policy typically specifies:

1. Activities that support development of a participatory culture serve the business objectives and stated values of the organization.

2. Individual and/or group involvement is sought in decision-making processes affecting their work.

3. Individuals are involved in making commitments that they are accountable for fulfilling.

4. There is an environment of open communication between all levels and groups within the organization

Commitment 3 An organizational role(s) is assigned responsibility for coordinating its activities in support of developing a participatory culture across the organization.

Ability to perform

Ability 1 The organizational role(s) assigned responsibility for coordinating activities that support development of a participatory culture is staffed.

> Examples of individuals who might be assigned responsibilities for activities that support development of a participatory culture include:
> - executive management,
> - staff assistants,
> - committees, and
> - members of human resources group.

Ability 2 Adequate resources and funding are provided for the planned activities that support development of a participatory culture.

Ability 3 Managers are trained in communication and participatory management skills.

> Examples of relevant skills in which managers may be trained include:
> - commitment processes,
> - consensus-building skills,
> - participatory management techniques,
> - group problem-solving and decision-making techniques,
> - information analysis and communication techniques, and
> - work coordination techniques.

Ability 4   **Individuals assigned responsibility for decision making are trained in decision-making processes, methods, and skills.**

Activities performed

Activity 1   **Individuals identify the information that they need to perform their assigned responsibilities.**

> Examples of sources for identifying needed information include:
> - assigned tasks and responsibilities,
> - standard processes,
> - workgroup coordination,
> - assigned or assumed roles, and
> - dependencies within a workflow.

Activity 2   **Individuals work with each other to develop effective means of communicating information.**

1. Individuals meet within their groups and units to coordinate the flow of needed information.

2. Individuals and groups develop common understandings of the terms and representations that they use in communicating.

3. Individuals or groups meet with those in other groups or units, as needed, to coordinate information flows across the organization.

4. Individuals or groups determine information they need to provide to others and the form in which the information should be delivered.

5. Individuals or groups create communication vehicles to improve the flow of information.

6. Individuals recommend improvements in information flows that require larger coordination or automation within the organization.

Activity 3   **Those assigned management or supervisory responsibility for a body of work maintain an ongoing involvement with those performing the work.**

Those assigned management or supervisory responsibility for a body of work:

1. Maintain an awareness of individual and group performance and the status of the work.

> Examples of mechanisms for maintaining ongoing communication with the individuals and groups include:
> - management by walking around (MBWA),
> - staff meetings,
> - frequent informal meetings, and
> - ongoing interactions with individuals and groups.

2. Maintain an awareness of the technical aspects of the work.

3. Identify information needed by those who perform the work and insure that they receive it.

Activity 4   **Executive management initiates an effort to shift decision making down to appropriate levels of the organization.**

1. Input, authority, and responsibility for decision-making are extended to the lowest level of the organization appropriate for the specific decision.

2. Executives initiate the program with those who report to them, and demonstrate their commitment by delegating appropriate decisions.

3. Individuals at each level of the organization identify decisions for which:

   ❑ input or review should be sought from lower or lateral levels,

   ❑ concurrence, consensus, or unanimity should be reached on the decision before it is announced, and/or

   ❑ the decision should be made at lower levels.

Activity 5   **Decision-making processes and roles are identified for different types of decisions.**

> Different types of decisions require different processes and roles
> [Plunkett91]. Examples of different types of decisions include:
> - independent decisions - the individual or group making the
>   decision has full authority to make it without seeking advice or
>   consent from anyone else,
> - coordinated decisions - the individual or group making the
>   decision has the authority to make the decision, but only with
>   input or approval from other parties, and
> - consensus decisions - the decision reached must be one that can be
>   supported by a defined set of individuals or groups before it is
>   announced.

1. Decisions are analyzed to determine the decision type and to provide
   guidance for defining or adopting an appropriate decision-making
   process.

   > Examples of issues to be considered in analyzing decisions include:
   > - who is accountable for the results of the decision,
   > - who has information relevant to the decision,
   > - who must support the decision,
   > - whose work activities are affected by the decision,
   > - whose activities the decision must be coordinated with,
   > - who must approve the actions resulting from the decision,
   > - how quickly the decision must be implemented, and
   > - will anyone be disenfranchised by the decision.

2. The organization develops or adopts standard decision-making
   methods and processes with defined roles for use with different types
   of decisions.

**Activity 5
(continued)**

Examples of decision-making methods and processes include:
- consensus development,
- problem solving,
- policy deployment,
- conflict resolution,
- nominal group technique,
- force field analysis,
- voting techniques,
- brainstorming, and
- Delphi.

3. Roles in the decision-making process are assigned to appropriate individuals or groups.

4. Those with management or supervisory responsibility for individuals or groups assigned authority for a decision ensure that the individual or group is prepared for their decision-making responsibilities.

Examples of knowledge and skills that are prerequisites to exercising decision-making responsibility include:
- knowing information needed to make the decision,
- being able to execute an appropriate decision-making process,
- understanding the basis for the authority they exercise in making the decision,
- understanding the limits of their empowerment for making decisions, and
- understanding how to implement the decision.

Activity 6   **Decisions made by those empowered to make them are supported by others in the organization.**

Activity 7   **Individuals and groups are involved in making decisions that
                    affect their work.**

1. Where appropriate input is sought from the workforce on important
    decisions affecting the whole organization.

2. Individuals or groups participate in appropriate ways in the
    development and review of organizational policies, plans, and
    procedures that affect them.

3. Individuals or groups participate in making decisions about how to
    organize and perform their work.

4. Individuals or groups participate in decisions affecting their work
    environment.

5. The rationale behind a decision is communicated to those affected by
    the decision.

Activity 8   **Individuals and groups participate in making commitments that
                    they are responsible for meeting.**

1. Individuals are involved in reviewing assigned work and, when
    appropriate, approving the inputs (such as requirements) that initiate
    the work.

2. Individuals are involved in estimating the resources and schedule
    required to accomplish the assigned work.

3. Individuals agree to commitments that they are responsible for
    meeting.

4. Individuals are involved in reviewing progress against commitments
    and in changing commitments regarding assigned work, when
    necessary.

Activity 9   **Individuals and groups participate in shaping their work
                    environments.**

Measurement and analysis

Measurement 1 **Measurements are made and used to determine the status of participatory activities and trends within the organization.**

Examples of measurements include:
- number of information coordination meetings conducted,
- new communication mechanisms established,
- rate at which decisions are moved down the organization,
- rate at which decision making processes are defined and trained,
- number of people involved in decision and commitment procedures,
- effectiveness of communication mechanisms,
- number of inputs or suggestions received and adopted on organizational communication improvements, and
- results from opinion feedback mechanisms.

Measurement 2 **Measurements are made and used to determine the quality of the participatory practices adopted in the organization.**

Examples of measurements of the quality of participatory practices include:
- results of decisions,
- improvements in motivation and morale,
- number or people actively seeking involvement in decision making,
- the quality of the information available for decisions,
- the speed of making decisions,
- the speed of implementing decisions,
- the quality of inputs to committed work,
- the accuracy of estimating commitments, and
- the record of meeting commitments.

Verifying implementation

Verification 1   **A responsible individual(s) verifies that communication and decision-making activities within the organization are conducted in an open and participative manner according to the organization's values and policies.**

These reviews verify that:

1. Participatory culture activities comply with the organization's policies and stated values.

2. Individuals and/or groups are involved in communication and decision-making processes where appropriate.

3. Noncompliance items are handled appropriately.

Verification 2   **Executive management periodically reviews the level of participatory behavior.**

These reviews verify:

1. The level of open communication and participatory behavior in the organization.

2. The involvement of individuals and groups in decision and commitment processes.

3. Results from reviews of activities performed to develop a participatory culture against the stated values and appropriate policies.

4. Status of resolution for noncompliance issues.

Level 4: Managed

The key process areas at the Managed level focus on building competency-based teams and establishing a quantitative understanding of trends in both the development of knowledge and skills and the alignment of performance across different levels of the organization. Mentoring is used to apply the experience of individuals to provide personal support and guidance to other individuals or groups. The organization undertakes formal team building to integrate the knowledge and skills required to accomplish its business functions. Organizational growth in each of the organization's core competencies is quantitatively managed.

Mentoring

A key process area for Level 4: Managed

The purpose of Mentoring is to use the experience of the organization's workforce to provide personal support and guidance to other individuals or groups. This guidance can involve developing knowledge and skills, improving performance, handling difficult situations, and making career decisions.

Mentoring involves setting objectives for a mentoring program, designing mentoring activities to achieve these objectives, selecting and training appropriate mentors, assigning mentors to individuals or groups, establishing mentoring relationships, and evaluating the effectiveness of the program.

The organization develops one or more sets of objectives for the mentoring program. Appropriate types of mentoring relationships are designed for different mentoring objectives within the program. Criteria are developed for selecting mentors and those chosen are trained for their assignments. Individuals or groups being mentored are provided orientation on how they can best take advantage of a mentoring relationship. Criteria are developed for assigning mentors to individuals or groups. The mentor and the individual or group being mentored establish agreements on how their relationship will be conducted. Mentors meet periodically and occasionally evaluate whether they are achieving their objectives. Advice is available to improve the effectiveness of the mentoring relationship. The mentoring program is evaluated against its objectives to identify needed improvements.

Goals

Goal 1   Mentoring activities are matched to defined objectives.

Goal 2   Mentors are selected and prepared for their responsibilities.

Goal 3   Mentors are made available for guidance and support to other
              individuals or groups.

Commitment to perform

Commitment 1   The organization follows a documented policy for mentoring
                activities.

                The policy typically specifies that:

                1. Mentoring activities serve the business objectives and stated values of
                   the organization.

                2. Mentoring activities are encouraged but not imposed on individuals.

                3. Mentoring activities are to be included in the strategic and near-term
                   workforce plans of the organization.

                4. Mentoring activities are instituted where appropriate to provide
                   support to individuals or groups.

                5. Documented procedures are developed and used to guide mentoring
                   activities. These procedures typically specify:
                   ❑ requirements for the selection, training, and assignment of
                     mentors;

**Commitment 1
(continued)**

❑ conditions under which mentoring relationships may be established, changed, or terminated; and

❑ requirements for periodic evaluation of the program to ensure its effectiveness and to identify improvements.

Commitment 2

An organizational role(s) is assigned responsibility for coordinating mentoring activities across the organization.

Ability to perform

Ability 1

The organizational role(s) assigned responsibility for coordinating mentoring activities is staffed.

Ability 2

Adequate resources and funding are provided for mentoring activities.

1. Experienced individuals are made available to act as mentors.

2. Time is made available for mentors and individuals or groups to engage in mentoring activities.

3. Resources to support mentoring activities are made available.

> Examples of resources needed to support the mentoring program include:
> – training for mentors;
> – orientation for individuals or groups to be mentored;
> – availability of an advisor for mentors, individuals, or groups; and
> – support for evaluation of the mentoring program.

Ability 3

Individuals selected to act as mentors have been trained in relevant mentoring objectives, techniques, and skills.

**Ability 3
(continued)**

Examples of mentoring skills in which mentors are trained include:
- how to accomplish mentoring program objectives,
- how to conduct a mentoring relationship,
- interviewing and active listening,
- providing guidance and advice,
- providing a role model,
- problem solving,
- performance improvement methods,
- principles of knowledge and skill development,
- career opportunities and development methods,
- advising groups,
- team building,
- methods for integration with the organizational culture,
- roles to be fulfilled, and
- how to evaluate mentoring success.

Ability 4

Individuals or groups to be mentored receive orientation to the mentoring program.

Examples of issues for mentoring program orientation include:
- objectives of the mentoring program,
- attributes of an effective mentoring relationship,
- problem-solving skills,
- expectations for mentoring relationships,
- roles to be fulfilled in mentoring, and
- how to handle problems or inefficiencies in the mentoring relationship.

Activities performed

Activity 1   **The objectives and structure of the mentoring program are defined.**

1. The organization identifies which positions, individuals, or groups within the organization can be involved in a mentoring program.

2. The organization establishes one or more sets of objectives for the mentoring program to accomplish.

   Examples of objectives for mentoring programs include:
   - orientation and adjustment to the organization,
   - development of specific knowledge and skills,
   - development of core competencies,
   - preparation of specific management or executive skills,
   - learning the ropes within the organization,
   - one-on-one personal attention,
   - improved group effectiveness,
   - team development,
   - career advice and development,
   - counseling and advice concerning problems, and
   - sponsorship of the individual or group.

3. Procedures for mentoring functions are tailored to each set of objectives.

   Different types of mentoring relationships may be defined for different sets of objectives. For instance, mentoring activities may differ by position or tenure in the organization such as those designed for new employees versus those designed for new executives.

**Activity 1
(continued)**

> Examples of elements to be defined for each type of mentoring
> relationship include:
> - the roles and responsibilities of the mentor and the individual or
>   group,
> - how mentors will be selected and trained,
> - how individuals or groups will receive orientation on mentoring,
> - how mentoring relationships will be established,
> - how objectives of the relationship will be accomplished,
> - how the program will be monitored for effectiveness,
> - how the program will be evaluated, and
> - the expected duration of the mentoring relationship.

4. Roles are defined for mentors to fulfill.

> Examples of roles that mentors might fulfill include:
> - role model,
> - personal or group advisor,
> - career counselor or sponsor,
> - knowledge and skill developer,
> - performance advisor,
> - problem solver, and
> - expert.

5. Alternative structures for providing the types of benefits achieved
   through mentoring are considered when appropriate.

> Examples of alternate approaches to mentoring include:
> - mentoring circles,
> - a software engineering process group, and
> - other support groups or networks, such as a local software process
>   improvement network (SPIN) group.

Activity 2   **The mentoring program is communicated to all affected individuals or groups.**

Information about the mentoring program to be communicated may include:

1. Program goals and structure.

2. The positions, individuals, or groups covered in the program.

3. Procedures for volunteering to act as a mentor.

4. Procedures for being included as an individual or group receiving mentoring.

5. Orientation and training requirements.

Activity 3   **Individuals and/or groups are invited to participate in the mentoring program.**

1. The organization selects methods to invite participation in the mentoring program based on the objectives established for its mentoring program.

   > Examples of methods that could be used to invite participation in the mentoring program range from active personal solicitation to passive announcements of the program's availability.

2. A responsible individual is available to answer questions about the mentoring program.

Activity 4   **Mentors are selected and prepared for their assignments.**

1. Criteria are defined for selecting mentors.

> Examples of criteria for selecting mentors include:
> – experience required to mentor various positions, individuals, or groups;
> – knowledge required to mentor various positions, individuals, or groups;
> – interpersonal and communication skills;
> – business and organizational judgment;
> – ability to provide a successful role model;
> – availability requirements;
> – commitment to developing individual knowledge and skills;
> – ability to assess development or career needs;
> – ability to provide guidance on performance or career enhancement;
> – ability to provide personal support;
> – ability to work with groups or teams; and
> – commitment to developing and guiding others.

2. Candidates who have applied for mentoring assignments are evaluated against the criteria, and those who are qualified are selected to act as mentors.

3. Selected mentors are trained in mentoring responsibilities and skills.

Activity 5   **Mentors are assigned to individuals or groups.**

Mentors are assigned based on:

1. Requirements for organizational or managerial distance between the mentor and the individual or group to be mentored.

2. Criteria for matching mentors with individuals or groups.

**Activity 5
(continued)**

Examples of criteria for matching mentors with individuals or groups include:
- task, position, or career experiences;
- knowledge and skill needs of the individual or group to be mentored;
- personal development needs of the individual to be mentored;
- group or team development needs;
- common backgrounds;
- career aspirations of the individual or group to be mentored;
- ability to match schedules for meetings;
- personalities or interests;
- level of mentoring involvement;
- exposure to the breadth of the organization; and
- geographical considerations.

3. Criteria for handling requests for specific assignments.

Activity 6 **Mentors and individuals or groups to be mentored establish a mentoring relationship.**

1. Both mentors and the individual or group to be mentored receive appropriate training or orientation before establishing their mentoring relationship.

2. During their initial meetings, mentors and the individual or group establish the basic agreements on which their relationship will develop.

Examples of issues that they should ultimately reach agreement on include:
- what they both expect to achieve from the mentoring relationship,
- whether they will meet on a periodic or event-driven basis,
- initial goals to accomplish through mentoring,
- whether they will build and track a plan for their development objectives,
- how they will evaluate their progress,
- how they will conduct their meetings, and
- how they will communicate between meetings.

Activity 6 (continued)

3. If skill development is to be part of the mentoring relationship, they evaluate and agree on what skills the individual or group needs to develop and how they will jointly undertake this development.

4. The mentor provides feedback and guidance to the individual or group in a timely manner.

5. They continually discuss the job performance or behavior of the individual or group and plan for future development needs.

> Examples of issues that might be handled during mentoring sessions include:
> - evaluation of current performance and behaviors,
> - use of time,
> - setting priorities,
> - self management,
> - interpersonal style and skills,
> - replaying the handling of situations or the making of decisions,
> - identifying strengths and areas needing development,
> - analyzing barriers to job performance or career growth,
> - identifying needed changes in attitude or style,
> - analyzing the resources and operations of the organization, and
> - analyzing career options and needed skills.

Activity 7

Guidance is made available to mentors and individuals or groups on how to improve their mentoring relationship.

> Examples of guidance provided on mentoring relationships include:
> - how to initiate the relationship,
> - when and how frequently to have meetings,
> - potential topics to be discussed,
> - how to determine the mentoring needs of the individual or group,
> - methods for pursuing mentoring objectives,
> - how to track progress in the mentoring relationship,
> - how to handle job or career problems, and
> - how to overcome problems in the mentoring relationship.

**Activity 7
(continued)**

1. An advisor should be available to mentors or to individuals and groups to discuss how to make the mentoring relationship more effective.

2. Meetings might be conducted from time to time to allow mentors, individuals, or groups to express concerns or improvements that should be considered in the mentoring program.

Activity 8

The mentoring relationship is periodically reviewed to ensure that the relationship is satisfying its intended objectives.

1. The mentor and individual or group to be mentored periodically review the progress they are making toward their agreed-upon objectives.

Activity 9

Corrective action is taken to resolve problems with mentoring relationships.

Examples of corrective actions include:
- reestablishing the basis for the specific mentoring relationship,
- planning more effective meetings or actions,
- getting additional advice or training on conducting an effective mentoring relationship, and
- assigning a new mentor to the individual or group.

Activity 10

Mentors are recognized for successful mentoring activities.

Examples of recognition for successful mentors include:
- awards,
- public recognition in meetings or newsletters,
- privileges,
- financial considerations, and
- acknowledgment for success in mentoring-related performance or career objectives.

Measurement and analysis

Measurement 1   **Measurements are made and used to determine the status of mentoring activities.**

> Examples of measurements to determine the status of mentoring activities include:
> - the number of mentoring relationships established,
> - the rate at which candidates apply to become mentors,
> - the efficiency with which new mentoring relationships are established,
> - the frequency with which mentors and individuals or groups interact,
> - the evaluation of mentoring activities by individuals or groups, and
> - the number of problems identified and improvements made in mentoring relationships.

Measurement 2   **Measurements are made and used to determine the value of mentoring activities.**

> Examples of measurements to determine the value of mentoring activities include:
> - the growth of core competencies in individuals or groups being mentored,
> - the ability of individuals or groups to use the resources of the organization,
> - the performance of individuals or groups on their tasks,
> - the career development of individuals, and
> - the alignment of individual, group, or team motivations with the objectives of the organization.

Verifying implementation

Verification 1   **A responsible individual(s) verifies that mentoring activities are conducted according to plan and the organization's documented policies.**

These reviews verify that:

1. Mentoring activities comply with the organization's policies and stated values.

2. Noncompliance items are handled appropriately.

3. All actions related to mentoring activities are periodically reviewed to ensure that they conform to the organization's documented policies.

Verification 2   **The organization's effectiveness in implementing a mentoring program is periodically reviewed by executive management.**

These reviews verify the:

1. Appropriateness of mentoring activities.

2. Progress in performing mentoring activities.

3. Results from reviews of mentoring activities against the organization's values and appropriate policies.

4. Status of resolution for noncompliance issues.

Team Building

A key process area for Level 4: Managed

The purpose of Team Building is to capitalize on opportunities to create teams that maximize the integration of diverse knowledge and skills to perform business functions.

Team Building involves matching potential team members to the knowledge and skill requirements of the team, training all new members in team skills, defining objectives for team performance, tailoring standard processes for use by the team, and periodically reviewing team performance.

Opportunities to form teams are identified within the organization's or unit's work process. The organization or unit identifies the knowledge and skills required for the team. Team members are selected to provide a mix of complementary knowledge and skills that satisfy the requirements of the various tasks and roles involved in the team's work. Where appropriate, this will involve a mix of the core competencies of the organization. Team members are trained in team skills, some of which are identified as core competencies of the organization. Objectives are established for team performance. The team adopts and tailors for its use any standard team or relevant work processes defined for use by the organization. The team defines processes as necessary to perform its assigned responsibilities and a set of performance criteria that are approved by management. The team assesses its own performance and periodically reports results.

Goals

Goal 1 Teams are formed to improve the performance of interdependent tasks.

Goal 2 Team assignments are made to integrate complementary knowledge and skills.

Goal 3 Team members develop their team skills.

Goal 4 Team members participate in decisions regarding their work.

Goal 5 The organization provides standard processes for tailoring and use by teams in performing their work.

Commitment to perform

Commitment 1 The organization follows a documented policy for its team-building activities.

This policy typically specifies:

1. Team-building activities serve the business objectives and stated values of the organization.

2. Team-building activities are to be included in the strategic and near-term workforce plans of the organization.

Commitment 1 (continued)

3. Teams are instituted where appropriate to perform interdependent tasks that accomplish the business functions of the organization.

> *Team* is intended to imply a group of people who:
> - work closely together to achieve shared objectives,
> - work together on tasks that are highly interdependent, and
> - may exercise a level of autonomy in managing their activities in pursuit of those objectives.
>
> According to Katzenbach and Smith [Katzenbach93, pg. 45], "A team is a small number of people [less than 10] with complementary skills who are committed to a common purpose, performance goals, and approach for which they hold themselves mutually accountable." The concept of teams usually implies that a team is responsible for a "whole work process" [Wellins91]. Teams can be formal units or subunits that appear on the organization chart, they can have matrixed reporting relationships, or they can overlay across the organization chart and be composed of members from numerous units [Mohrman95]. Several types of teams that could be developed include:
> - work teams,
> - programming or design teams,
> - coordination teams,
> - customer focus teams,
> - management teams, and
> - process improvement or re-engineering teams.

4. Procedures are developed for guiding the organization's team-building activities. These procedures typically specify:

☐ how teams are to be initiated and constituted,

☐ how information about the knowledge and skills of potential team members is to be used in selecting and assigning team members,

☐ how teams are to be prepared for performing their tasks,

☐ how team accountability will be established,

☐ how team performance is to be reviewed, and

☐ how teams are to be dissolved, when appropriate.

Commitment 2

Team skills relevant to the organization's method for implementing teams are treated as core competencies.

Commitment 3   An organizational role(s) is assigned responsibility for
coordinating team-building activities across the organization.

Ability to perform

Ability 1   The organizational role(s) assigned responsibility for team-
building activities is staffed.

Ability 2   Appropriate opportunities for forming teams within a unit's
business functions are available.

1. The organization's near-term workforce plan includes activities
    directed at identifying team-building opportunities.

2. Where appropriate, a unit's business processes may be redesigned to
    support the development of teams.

Ability 3   Adequate resources and funding are provided for the planned
team-building activities.

1. Experienced individuals who have expertise in team building are
    made available.

    Examples of individuals with expertise in team building include:
    - team mentors,
    - individuals from successful teams,
    - trainers, and
    - members of the human resources group.

2. Time and resources are made available for training needed in team-
    building skills.

Ability 4   **All team members are trained in team skills.**

Examples of relevant team skills to be trained may include:
- team formation and member selection,
- stages of team development,
- tailoring organizationally-defined team processes,
- role and task definition,
- team interpersonal skills,
- team leadership and decision making,
- team goal setting and performance feedback,
- team communication and coordination,
- resolving team problems, and
- team discipline and self-management.

Ability 5   **Responsible individual(s) to whom teams are accountable are trained in the skills for managing teams.**

Examples of relevant team management skills in which individuals are trained include:
- matching team organization and structure to business function,
- coaching and facilitating teams,
- coordinating team goals with unit and organizational goals,
- supervising different types of teams,
- applying workforce practices to teams, and
- tracking and providing feedback on team performance.

Activities performed

Activity 1   **Team-building activities are planned in the organization's and unit's strategic and near-term workforce plans.**

**Activity 1
(continued)**

1. The organization's and each unit's strategic workforce plans contain activities for designing and organizing work to establish favorable conditions for the development of teams where appropriate.

2. Where appropriate, each unit's near-term workforce plan includes team-building activities.

3. The organization's near-term workforce plan includes objectives for providing training in team building to serve the team-building plans of its units.

Activity 2

The organization designs and maintains an approved set of team structures and processes for application in appropriate situations.

> The type of team structure and process to implement must be decided on the basis of situational conditions. The specific team structures and processes adopted in different situations vary, and an organization may support several different types of teams. Different types of team structures are implied by titles that include:
> - self-managed or self-directed work teams,
> - empowered teams,
> - cross-functional teams,
> - concurrent engineering teams,
> - matrixed teams,
> - integrated product development teams,
> - high-involvement teams, and
> - high-performance teams.
>
> According to [Mohrman95] teams are referred to as *empowered* if "they do not have to go through hierarchical approval for many of their decisions about how to do their work," and they are referred to as *self-managed* if "they perform for themselves many of the tasks that management used to perform, such as scheduling, monitoring performance, and so forth."

1. The organization analyzes the types of opportunities it has for team building to determine the most appropriate team structures and processes.

Activity 2
(continued)

> Issues to be considered in identifying appropriate team structures include:
> - assigned responsibilities,
> - business processes to be performed,
> - level of self-containment of processes within the team,
> - diversity of knowledge and skills required,
> - duration of the assigned task,
> - accountability for results,
> - relationship to the organizational structure, and
> - motivating conditions and availability of rewards.

2. The organization designs an approved set of team structures and processes for use in situations favorable to their success.

> The organization's set of standard team structures and processes are documented and used as the basis for training and facilitating the formation of new teams. These structures and processes are intended to guide new teams in adopting effective team practices without having to spend time reinventing them. Examples of structural and process elements to be designed for each type of team include:
> - level of empowerment,
> - scope of decision authority,
> - accountability and management/reporting relationships,
> - team leadership,
> - team roles,
> - problem-solving and decision processes,
> - level of independence in planning and goal setting,
> - level of self-management,
> - team size and member composition, and
> - support mechanisms.

3. The organization's set of approved team structures and processes is:
   - ❏ updated and expanded as situations require;
   - ❏ used for initiating, training, guiding, and managing teams; and
   - ❏ used as the basis for adjusting workforce practices to support teams.

**Activity 2
(continued)**

> Refer to the Team-Based Practices key process area for adapting
> workforce practices to teams.

Activity 3   **Appropriate opportunities for forming teams within a unit's or
the organization's business functions are identified.**

> Those responsible for the performance of a unit must decide where there
> are opportunities within their operations to build effective teams.
> Team building should occur only where the conditions are favorable to
> successful implementation. Example conditions that should usually
> exist for building an effective team include:
> - participatory culture has been established,
> - interdependent action is necessary for success,
> - work is structured in a way that a team can exercise effective
>   control over its operations and results,
> - the assigned work supports the development of shared goals,
> - a measurable basis for team performance can be established,
> - conditions exist that support commitment to the team by each
>   individual assigned to it,
> - complementary skills required for successful performance by the
>   team are available,
> - individual(s) to whom the teams are accountable are capable of
>   successfully managing and/or facilitating teams, and
> - team goals can be aligned with unit and organizational objectives.

1. The work processes and conditions of each unit considering the
   implementation of one or more teams are analyzed to determine if
   conditions are favorable for team building.

2. The work processes and conditions across several units that are
   considering the implementation of one or more cross-unit teams are
   analyzed to determine if they are favorable for team building.

3. Teams are formed only when conditions are favorable for team
   building.

Activity 4   **Work processes and conditions are organized to support team building.**

1. When appropriate, work processes and conditions within units and the organization are altered to maximize the success of team-building activities.

2. When work processes and conditions cannot be made favorable, team building is delayed.

Activity 5   **An appropriate team structure is selected for application in each situation where a team will be initiated.**

1. Situational conditions are analyzed to determine the most effective type of team for the work to be performed.

2. The structural and process elements of the team type chosen are used as the basis for initiating team formation.

Activity 6   **The knowledge and skills required to perform the team's work processes are identified.**

1. Before a team is formed, the knowledge and skills needed to perform its tasks and functions are identified.

   > See the Knowledge and Skills Analysis key process area at the Defined level for a description of these practices.

2. The knowledge and skills required to perform the tasks within the team's work process are documented and made available for use in staffing, performance management, training, and other workforce activities related to the team.

3. The team's knowledge and skills profile is reevaluated whenever the process, technologies, or tasks used by the team are significantly redefined.

Activity 7

Team members are selected and assigned to the team based in part on the degree to which their knowledge and skills fill team needs and complement those of other team members.

1. Team makeup is designed to incorporate a mix of complementary knowledge and skills related to the team's process and assigned responsibilities.

2. During the early stages of team formation, anticipated knowledge and skill requirements are used for initial staffing decisions.

    Examples of relevant criteria for evaluating potential team members include:
    –   knowledge and skills related to tasks and responsibilities to be assigned to the team;
    –   ability to work in a team environment;
    –   ability to complement the mix of knowledge and skills in the team;
    –   potential to fulfill a significant responsibility on the team, such as team leader or liaison to another group or unit;
    –   ability to acquire additional knowledge and skill related to the team's process or tasks;
    –   existing work load and time available to fulfill responsibilities to the team;
    –   anticipated fit with other team members; and
    –   personal motivation.

3. Established teams define and execute selection methods for evaluating the knowledge and skills of candidates for team membership against those needed by the team.

4. Team members are involved in making selection decisions based on the identified criteria and the information produced during the selection process.

5. The team orients new team members to the team and to their new responsibilities.

Activity 8   **Team members receive the training needed to overcome shortfalls in team knowledge and skills.**

1. Teams assess their capability in each of the areas of knowledge and skill needed to perform their business processes.

2. Relevant and timely training to overcome shortfalls is identified and provided.

3. Cross-training over disciplines is provided to a multidisciplinary team when it is beneficial to team performance.

Activity 9   **The individual(s) or entity to whom the team is accountable provides assigned responsibilities and business objectives to the team.**

1. The individual(s) or entity to which the team is accountable assigns:
   - ❑ goals and responsibilities to be accomplished by the team;
   - ❑ the strategy for how the team's activities and work products fit in with the activities and work products of other teams, groups, or units; and
   - ❑ objective criteria by which team performance is to be evaluated.

2. The team reviews and agrees to the tasks, responsibilities, and performance criteria assigned to it.

3. The team negotiates any disagreements with the tasks, responsibilities, and performance criteria with the individual(s) or entity that assigned them.

Activity 10   **Teams receive facilitation as needed during their initiation or operation.**

1. A facilitator(s) (who could be the person to whom the team reports) is available to aid the team in developing effective team skills and behaviors.

2. A facilitator(s) can be requested as necessary to aid teams in developing skills or overcoming problems in any aspect of their operation.

3. A mentor is assigned if requested by the team.

Activity 11   **Teams tailor standard team processes for use in performing their work processes.**

1. Teams adapt the standard structural and process elements of their selected team type by tailoring them to their specific assigned responsibilities, necessary work processes, and working conditions.

> Examples of issues to be tailored or defined in establishing the team's work process include:
> - the tasks to be performed and the methods to be used in performing them,
> - the roles to be performed in accomplishing the tasks,
> - the interdependencies among the roles,
> - how team management functions will be accomplished,
> - how team decisions will be reached,
> - how commitments will be made to external groups,
> - how team conflicts will be resolved, and
> - how progress will be reviewed and evaluated within the team.

2. Teams analyze the tasks they will need to perform to accomplish their assigned goals and responsibilities and define additional team work processes as necessary. The team's defined work process typically addresses:

    ❑ planning and executing the work of the team, including work design and monitoring performance management within the team;

    ❑ integration with other teams;

    ❑ managing team performance; and

    ❑ improving team performance.

3. The team's tailored processes are reviewed to ensure that they comply with all relevant organizational policies and standards.

Activity 12   **Teams plan their work and commitments.**

1. Teams are responsible for planning the activities required to accomplish their assigned responsibilities.

Activity 12 (continued)	2. All team members are involved in planning their work and making commitments external to the team.
	3. A team's commitments undergo the standard external approval process as tailored for use by the team.

Activity 13   **Teams define appropriate measures of their work products and processes.**

1. Teams define and agree on measures of their work products and processes.

2. Teams define a method for collecting and using their performance measures.

3. The definition and use of measures that the team will report externally are negotiated with those receiving the measures.

Activity 14   **Teams establish working relationships with other teams, groups, or units that are necessary to execute their work responsibilities.**

Examples of other teams, groups, or units with which the team may need to establish a working relationships include:
- other teams, groups, or units with which the team shares work or product dependencies;
- management;
- external groups such as customers or business partners;
- staff functions; and
- individuals or groups with relevant knowledge, experience, or responsibilities.

---

1. Dependencies with work performed in other teams, groups, or units are identified.

2. Communication and coordination mechanisms are established with other teams, groups, or units with which the team shares dependencies.

Measurement and analysis

Measurement 1   **Measurements are made and used to determine the status of team-building activities.**

Examples of measurements include:
- number and rate at which teams are being identified and formed,
- average size and composition of teams,
- rate at which training in team building is delivered across the organization, and
- rate at which teams define and document their work processes.

Measurement 2   **Measurements are made and used to determine the value of team-building activities.**

Examples of measures of team-building activities include:
- extent to which business objectives assigned to teams are accomplished,
- performance-based evidence of increases in unit or organizational performance related to team building,
- staff ratings of the effectiveness of team-building activities, and
- rate at which core competencies related to team building are developed within the organization.

Verifying implementation

Verification 1   **A responsible individual(s) verifies that team-building activities are conducted according to plan and documented policies.**

**Verification 1
(continued)**

These reviews verify that:

1. Team-building activities comply with the organization's policies and stated values.

2. Noncompliance items are handled appropriately.

3. All actions related to team-building activities are periodically reviewed to ensure that they conform to documented policies.

Verification 2

The organization's effectiveness in implementing team building is periodically reviewed by executive management.

These reviews verify the:

1. Appropriateness of team-building activities.

2. Effectiveness of team-building activities at the organizational and unit levels.

3. Progress in performance of planned team-building activities.

4. Results from reviews of team-building plans and activities against the organization's stated values and appropriate policies.

5. Status of resolution for non-compliance issues.

Verification 3

The definition and use of team performance data are periodically audited.

Team-Based Practices

A key process area for Level 4: Managed

The purpose of Team-Based Practices is to tailor the organization's workforce practices to support the development, motivation, and functioning of teams.

Team-Based Practices involves ensuring that the work environment supports team functions, setting performance criteria and reviewing team performance, involving team members in performing workforce activities, and reflecting team criteria in individual compensation decisions.

Team-Based Practices begin with shaping the work environment to foster team-based activities. Objective performance criteria are established for the team. The individuals or groups to which the team is accountable maintain ongoing communication about performance with the team. Team members are involved in the performance of team-based practices such as team recruiting, selection, performance management, reward, training, development, and compensation activities as appropriate based on the structure and function of the team. Team data are used to identify needs for team development. Team-based criteria are factored into compensation decisions. Rewards are provided based in part on team criteria.

Goals

Goal 1

The organization adjusts its workforce practices and activities to motivate and support the development of team-based competencies within the organization.

Goal 2   Workforce activities are tailored to support the needs of different types of teams within the organization.

Goal 3   Team performance criteria are defined and measured.

Goal 4   Compensation and reward systems are tailored to motivate improved team performance.

Commitment to perform

Commitment 1   Organizational policies provide for application in situations where team building has been implemented.

Updating existing policies for application in situations where team building has been implemented typically involves:

1. Ensuring that the workforce practices which are updated to support team building serve the business objectives and stated values of the organization.

2. Determining how the standard workforce practices of the organization are to be applied to teams.

3. Obtaining appropriate executive oversight and approval.

4. Reviewing all team-based adjustments to workforce practices with a human resources professional to ensure their compliance with all applicable laws and regulations.

5. Identifying how these workforce practices should be applied in situations where team building has been implemented.

Commitment 2   An organizational role(s) is assigned responsibility for tailoring workforce practices for team-building situations.

Ability to perform

Ability 1 The organizational role(s) assigned responsibility for coordinating the adjustment of workforce practices to support the organization's team-building activities is staffed.

Ability 2 Adequate resources and funding are provided to tailor workforce practices for use in team-building situations.

1. Experienced individuals who have expertise in workforce practices are available to tailor workforce practices for use where team building has been implemented.

2. Adequate funding is available to tailor and deploy team-based practices that support the implementation of team building.

Ability 3 Competency-based practices exist that can be tailored to support competencies in team-based activities.

> Refer to the Competency-Based Practices key process area at the Defined level for a description of these practices.

Ability 4 All individuals responsible for administering team-based workforce practices and activities are trained in skills needed to perform them.

1. Individuals assigned responsibility for performing team-based workforce activities have received training or orientation in the application of these activities to the development and functioning of teams.

2. Individuals assigned responsibility for designing team-based practices have received adequate professional training in the knowledge and skills required to perform their responsibilities.

3. Individuals responsible for tailoring team-based practices for use with a specific team receive adequate training for performing their responsibilities.

Activities performed

Activity 1   **The organization's work environment is tailored to enhance its team activities.**

1. Facilities and resources that could enhance team performance are identified.

   > Examples of work environment resources that may enhance the performance of teams include:
   > - public spaces, such as team rooms and conference rooms;
   > - team offices and spaces located close to each other, when possible;
   > - groupware; and
   > - enhanced communications capabilities.

2. Where possible, these identified facilities and resources are made available to enhance team performance.

Activity 2   **The organization's standard workforce practices are adjusted for use with teams.**

1. Individuals responsible for coordinating various workforce practices and activities across the organization are involved in adjusting them for use by teams.

2. Individuals to be involved in teams are represented in the process of defining and reviewing team-based practices.

3. Human resources professionals are involved in ensuring that all workforce practices and activities that are adjusted for use with teams comply with all applicable laws and regulations.

4. Workforce practices and activities that are adjusted for use by teams include:

   ❏ how teams will recruit for open positions;

   ❏ how teams will develop the methods they will use for selecting new members;

   ❏ how new members will be oriented to the team;

**Activity 2
(continued)**

❏ how teams will conduct their internal performance management activities;

> Example performance management activities that may be conducted by teams include:
> - assessing team performance,
> - assessing the individual performance of team members,
> - assessing individual contributions to team performance,
> - identifying and managing performance problems, and
> - recommending or making recognition and rewards.

❏ how teams will determine their training needs and ensure that this training, in addition to any required training in the organization's core competencies, is accomplished;

❏ how compensation decisions will be reached;

> The level of involvement of teams in compensation decisions can range from no involvement, to mixed responsibility where teams have some input, to total responsibility for compensation decisions. The level of team involvement must be determined by the level of privacy that the organization wishes to maintain on compensation information, standard organizational practice, organizational culture, and laws and regulations regarding compensation.
>
> Examples of team involvement in compensation activities include:
> - using the inputs of team performance management activities in compensation decisions,
> - recommending adjustments to compensation,
> - reviewing compensation decisions,
> - providing feedback on compensation methods and decisions, and
> - recommending changes to the compensation strategy or the activities defined for the team.

❏ how teams will be involved and contribute to strategic and near-term workforce planning activities; and

❏ other workforce practices and activities, as appropriate.

Activity 3

When appropriate, team members are involved in tailoring and performing workforce activities for their team.

**Activity 3
(continued)**

> Teams will determine how they conduct their workforce activities
> within the boundaries set by the standard workforce practices that the
> organization has defined for different types of teams. The organization
> must determine the extent to which individuals or entities outside the
> team are involved in performing the team's workforce activities (e.g.,
> performance management, career development, and compensation).
> Decisions about how a specific team should conduct its workforce
> activities should be reviewed by a human resources professional for
> compliance with organizational policies and all relevant laws and
> regulations.

Activity 4   **Individual(s) or entities to which the team is accountable
maintain ongoing communication with the team about its
performance.**

> Examples of maintaining communication about team performance
> include:
> - periodic meetings to review progress,
> - periodic meetings without a fixed agenda,
> - periodic meetings to discuss formal performance feedback,
> - coaching,
> - mentoring sessions, or
> - team problem-solving sessions.

1. Those to whom the team is accountable maintain an awareness of the
   performance of each team they supervise against the team's
   documented performance criteria.

2. The team and those it reports to discuss and resolve problems.

> Examples of problems to be resolved include:
> - resource allocation issues;
> - internal team conflicts;
> - breakdowns in coordination with other teams, groups, or units;
> - overloaded assignments; and
> - conflicting priorities.

Activity 5   **Objective performance criteria are established and revised for each team.**

1. The team participates in defining its performance criteria.

    > The team's performance criteria are typically based on factors such as:
    > - the organization or unit's operational business plan,
    > - the organization or unit's objective performance criteria,
    > - the team's mission (general direction and role),
    > - the needs of its stakeholders and the deliverables or services that can meet these needs,
    > - the tasks that must be accomplished,
    > - the mutually-defined roles and expected contributions of each team member,
    > - the team's effectiveness in interacting with other groups, and
    > - schedule, cost, and quality performance criteria.

2. Stakeholders in the team's performance contribute to setting its performance criteria where appropriate.

    > Stakeholders may include individual team members, members of other groups with which the team coordinates, management, or customers.

3. The team's performance criteria are consistent with its unit and organizational performance objectives.

    > Team goal setting typically involves vertical goal setting in concert with their unit, and horizontal goal setting with other interdependent teams, groups, or units.

4. Individual team members define their performance criteria to be consistent with the team, unit, and organizational performance objectives.

    > Individual team members should define their performance in collaboration with coworkers.

**Activity 5
(continued)**

5. Team performance criteria are periodically reviewed to determine their appropriateness under changing business or organizational conditions and, if necessary, revised according to a documented procedure.

Activity 6

Team performance is evaluated on a periodic and event-driven basis.

1. Teams periodically or on an event-driven basis review their performance against internally and externally defined performance measures.

2. Teams openly discuss performance issues and seek solutions to performance problems.

3. Team performance is periodically evaluated against objective performance criteria that were previously agreed to by the individual(s) or entities to which the team is accountable.

4. Team performance is used as an evaluative factor in administering performance-related workforce activities.

Activity 7

Rewards and recognition based on team performance and individual contributions to team activities are provided, when appropriate, at the individual and team levels.

Activity 8

Team development activities are planned in the organization's and each unit's near-term workforce plans.

1. The organization's strategic and near-term workforce plans include training, advanced team building techniques, and other workforce activities for increasing the capabilities of teams.

2. The organization's strategic and near-term workforce plans include activities for increasing the level of team-based core competencies in the organization.

3. The organization's strategic and near-term workforce plans include activities for ensuring the continuity of effective team building and team-based practices.

Activity 9 **Continuous team development is based on analyses of the team's performance.**

Factors to evaluate in analyzing team performance may include:
- team performance against objective performance criteria,
- how the work is organized and carried out by the team,
- peer reviews by people external to the team,
- team self-evaluation,
- appropriate quality and productivity metrics,
- skill development needs for existing team members (both individual competency development and development of team-based skills),
- performance improvement against baselines, and
- the contribution of the team to the performance of the unit and the organization.

1. Development needs are identified at the team level.

2. Team-based development objectives are included in team planning and individual development objectives.

3. Progress against team-based development objectives is tracked by the team.

Activity 10 **The compensation system is designed, in part, to reward the team members for the team's performance and its contribution to enhancing the organization's performance.**

1. The impact of the compensation system on motivating the development and improved performance of teams is periodically reviewed.

Examples of the impact of the compensation system on team development and performance include:
- ability to stimulate the development of teams,
- ability to motivate individuals to develop capability in team-based competencies,
- ability to motivate team cohesion and coordination, and
- ability to attract and retain talent in team-based skills.

**Activity 10
(continued)**

2. The compensation system is designed in part to improve team performance and its contribution to performance at the unit and organizational levels.

3. The compensation system is administered in a way that optimizes the relationship of team performance with unit and organizational performance.

4. The compensation system is periodically reviewed to ensure that it has achieved its intended impact on stimulating team formation and performance.

5. The compensation system is revised when necessary to improve the impact of team performance on unit and organizational performance.

Activity 11   **Each individual's contribution to team performance is factored into his or her compensation decision.**

> Examples of team-based factors influencing compensation decisions include:
> – current capability in team tasks,
> – development of additional capabilities in team tasks,
> – successful completion of activities in individual development plans that are related to team building and team performance,
> – ability to translate capability in core competencies into enhanced team performance,
> – ability to help the team enhance unit and organizational performance, and
> – contribution in helping or mentoring others to improve their knowledge and skills related to team responsibilities.

1. Practices are devised to factor team performance into individual compensation decisions.

**Activity 11
(continued)**

Examples of mechanisms for factoring team-based incentives into individual compensation include:
- equal payments to all team members,
- payments based on team performance and/or team contribution to organizational performance,
- payments based on improvement in team performance,
- differential payments based on each individual's capabilities and contributions to the team, and
- differential payments based on the relationship of each individual's base pay to the group base bay.

2. The way in which team performance and individual contributions to team activities are factored into the individual's compensation decision is discussed with each individual.

Measurement and analysis

Measurement 1 **Measurements are made and used to determine the status of tailoring workforce practices for team-based activities within the organization.**

Examples of status measurements for team-based practices include:
- amount of time spent in tailoring workforce activities to the organization's team-based practices,
- rate or progress in tailoring the organization's workforce activities for team-building application, and
- indicators of the organization's increased efficiency in performing team-based workforce activities.

Measurement 2   **Measurements are made and used to determine the effectiveness of team-based workforce practices.**

> Examples of measurements of the effectiveness of team-based workforce practices include:
> - individual ratings of the effectiveness of team-based workforce practices;
> - increased level of motivation and retention resulting from team-based staffing, career planning, compensation, and reward practices;
> - improvements in team performance; and
> - increased impact of team performance on unit and organizational performance.

Verifying implementation

Verification 1   **A responsible individual(s) verifies that tailoring the organization's workforce practices for team-building application is conducted according to the organization's documented policies.**

These reviews verify that:

1. Team-based workforce practices comply with all applicable laws and regulations and with the organization's policies and stated values.

2. Noncompliance items are handled appropriately.

3. All actions related to team-based workforce practices are periodically reviewed to ensure that they conform to documented policies.

Verification 2   **The organization's effectiveness in implementing team-based workforce practices is periodically reviewed by executive management.**

These reviews verify the:

1. Appropriateness of team-based workforce practices at the organizational and unit levels.

2. Progress in performing team-based workforce practices.

3. Results from reviews of team-based workforce practices against the organization's stated values and appropriate policies.

4. Status of resolution for noncompliance issues.

Verification 3   **The definition and use of team performance data are periodically audited.**

Organizational Competency Management

A key process area for Level 4: Managed

The purpose of Organizational Competency Management is to increase the capability of the organization in its core competencies and to determine the effectiveness of its competency development activities in achieving specific competency growth goals.

Organizational Competency Management involves setting measurable goals for growth in the organization's core competencies, defining and collecting data relevant to them, analyzing the impact of competency development activities on achieving these goals, and using the results to guide the application and improvement of competency development activities.

Plans and improvement goals are periodically established for the organization's capability in each of its core competencies. The organization establishes its capability and trends relative to its goals in each of its core competencies quantitatively. Data are defined and collected, and trends are analyzed. When needed, the organization takes corrective actions to bring competency trends under managed control. The organization quantitatively determines the impact that its competency development activities have on its capability in its core competencies. Feedback on the organization's capability relative to its core competencies is reported on a regular basis. Corrective action is taken whenever necessary to ensure appropriate progress against the organization's capability goals or to improve the performance of its competency development activities.

Goals

Goal 1 Measurable goals for capability in each of the organization's core competencies are defined.

Goal 2 Progress toward achieving capability goals in the organization's core competencies is quantified and managed.

Goal 3 The knowledge and skills-building capability of the organization's competency development activities is known quantitatively for each of its core competencies.

Commitment to perform

Commitment 1 The organization follows a documented policy for developing capability in its core competencies.

This policy typically specifies that:

1. The organizational competency management activities support an organizational commitment to improve the organization's capability in each of its core competencies.

2. Organizational competency management activities serve the business objectives and stated values of the organization.

3. Competency-based measures are defined and collected for each of the organization's core competencies.

4. Measurable goals are defined for capability in each of the organization's core competencies.

5. Progress toward capability goals is quantitatively analyzed, reported, and monitored for each of the organization's core competencies.

Commitment 1
(continued)

6. Responsibilities for managing the development of capability in each of the organization's core competencies are defined and assigned to appropriate organizational roles.

7. Results of organizational competency analyses are used in managing and improving the competency development activities related to each core competency.

8. Human resources professionals are consulted to ensure that collection, use, and access to the data and analyses of trends in organizational competency comply with all relevant laws, regulations, and organizational policies.

Commitment 2   **An organizational role(s) is assigned responsibility for coordinating organizational competency management activities across the organization.**

Commitment 3   **Organizational roles are assigned responsibility for organizational competency management activities in each of the organization's core competencies.**

> Examples of organizational roles that might be assigned responsibility for managing the development of individual competencies might include:
> - competency center managers,
> - competency ownership teams,
> - selection boards for advancement in each competency area,
> - the human resources group, and
> - managers responsible for functions requiring a unique competency.

Ability to perform

Ability 1   **The organizational role(s) assigned responsibility for organizational competency management activities are staffed.**

Ability 2 **Adequate resources and funding are provided for the planned organizational competency management activities.**

1. Experienced individuals who have expertise in analyzing competency-based data are available to assist in quantitative analyses of the organization's competencies.

2. Experienced individuals with expertise in competency development activities are available to help responsible individuals use the results of quantitative analyses to improve the organization's competency development activities.

3. Tools for supporting organizational competency management activities are made available.

> Examples of tools to support organizational competency management activities include:
> - statistical analysis packages,
> - spreadsheets,
> - knowledge and skills analysis tools,
> - databases and other repositories, and
> - textual and graphical reporting tools.

4. The organization's near-term workforce plan allocates resources for its organizational competency management activities.

Ability 3 **All individuals analyzing and reporting competency-based data have been trained in quantitative data analysis and other relevant topics.**

Ability 4 **All individuals who provide data into or use the outputs of quantitative analyses of the organization's competencies receive appropriate orientation or training in the purposes and methods for using these data.**

1. Those who provide data to the organizational competency management activities receive orientation in the definition and analytic use of the data.

**Ability 4
(continued)**

2. Those who receive quantitative analyses of the organization's competencies receive orientation in how the results were generated and how to interpret them.

3. All individuals who are responsible for adjusting workforce practices to improve the development of core competencies receive training in how to make such adjustments.

Activities performed

Activity 1   **Organizational competency management activities are planned.**

1. Plans for the organizational competency management activities are prepared on a periodic basis, typically as part of workforce planning activities.

2. These plans are reviewed with all affected parties.

> Examples of parties affected by the plans for organizational competency management activities include:
> - those responsible for coordinating organizational competency management activities across the organization,
> - those responsible for performing and reporting competency-based activities,
> - the group responsible for analyzing and reporting quantitative analyses of the organization's competencies,
> - those with management responsibilities for units, and
> - executive management.

3. Plans for the organizational competency management activities are documented in the organization's and unit's near-term workforce plans and used as the basis for managing performance-related workforce activities.

4. The status of organizational competency management activities is periodically reviewed, and plans are revised as necessary when events or conditions necessitate changes.

Activity 2   **Measurable objectives are established for developing the organization's capability in each of its core competencies.**

> Examples of measurable objectives for capability in each of the organization's core competencies include:
> - the level of knowledge and skills available in each of the organization's core competencies,
> - the rate at which knowledge and skills are acquired in each of the organization's core competencies,
> - the deployment of core competencies across the organization,
> - trends in the relationship between competency development and business performance,
> - the rate at which individuals develop knowledge and skills in multiple competencies, and
> - the rate at which new competencies can be developed and deployed to relevant components in the organization.

Measurable goals for developing capability in each of the organization's core competencies are:

1. Developed by responsible individuals or groups as part of workforce planning activities.

2. Developed with input from all individuals affected by the goals.

3. Reviewed and agreed to by all individuals affected by the goals.

4. Aggregated at the organizational level into organizational goals.

5. Reviewed and approved by the level of management appropriate for the level of the goal.

6. Included in the strategic and near-term workforce plans of the organization.

7. Reviewed periodically and revised as necessary based on events or the results of the organizational competency management activities.

Activity 3

The organization develops a data collection, analysis, and reporting strategy for each of its core competencies.

1. The factors to be considered in developing a data collection, analysis, and reporting strategy for the development of core competencies include:

   ❏ the measurable goals established for the development of the organization's capability in each of its core competencies;

   ❏ trends to be analyzed in the development of the organization's capability in each of its core competencies;

   ❏ how data on the organization's core competencies are aggregated at the organizational level; and

   ❏ the frequency of collecting, analyzing, and reporting data on the organization's core competencies.

2. The data collection, analysis, and reporting strategy for each core competency is:

   ❏ reviewed and agreed to by all individuals or groups affected by it,

   ❏ reviewed and approved by executive management,

   ❏ periodically reviewed against results and revised as necessary to improve the value of the analyses performed,

   ❏ incorporated into competency development plans, and

   ❏ reviewed on a periodic basis and updated as necessary.

3. Data collection, analysis, and reporting activities are conducted according to the strategy, and the schedule is documented in the competency development plan for each core competency.

Activity 4

Trends in the organization's capability in each core competency are compared quantitatively to its competency development goals.

1. Data on the organization's capability in each core competency are defined and collected.

   > The initial measurements required to support this key practice were defined in the Knowledge and Skills Analysis, Competency Development, Competency-Based Practices, and Team Building key process areas. As quantitative analyses of organizational competency mature, additional or revised measures can be defined.

**Activity 4
(continued)**

2. Procedures that were developed for collecting, processing, and maintaining information in support of competency development activities will be observed in collecting and using data needed for organizational competency management activities.

> Refer to Activity 2 of the Competency Development key process areas for practices regarding procedures for tracking the knowledge and skills of the workforce in the organization's core competencies.

3. Procedures for analysis of organizational competency management are defined.

> Examples of analysis activities to be defined include:
> - how data are to be prepared for analysis,
> - which analyses and data manipulation methods are to be used,
> - which tools will be used to perform these analyses,
> - how baselines will be established for each core competency,
> - how trends will be determined from baselines,
> - what information will be reported from the analyses,
> - how results of analyses are to be represented,
> - how the results of analyses will be stored, and
> - how often results of competency management analyses will be reviewed to ensure that they are supplying information needed to improve competency development activities.

4. Approved uses and restrictions for these data are defined.

Activity 5   **The organization quantitatively determines the capability of its competency development activities to achieve the goals for developing each core competency.**

**Activity 5
(continued)**

> Examples of workforce activities that may be analyzed include:
> - the impact of recruiting activities on the mix and level of core competencies entering the organization,
> - the success of selection methods in identifying individuals with capabilities in the organization's core competencies,
> - the impact of performance management activities on identifying needs for training and competency development activities in the organization's core competencies,
> - the impact of training and competency development activities on increasing the level of core competencies in the organization,
> - the impact of career development and other competency-based practices on motivating and increasing the level and optimal mix of core competencies in the organization, and
> - the impact of team-building activities on supporting the development of the organization's core competencies.

1. Baseline measures of the organization's core competencies are established from analyses of data characterizing the level of core competencies in the organization.

2. The impact of competency-related workforce activities on the organization's core competencies is observed empirically, analyzed, and compared with competency baselines to identify trends.

3. Reports of these analyses are made available for use in managing and improving competency-related workforce activities.

> Examples of individuals or entities that would receive reports of these analyses include:
> - those responsible for coordinating workforce activities across the organization,
> - those responsible for performing and reporting workforce activities,
> - those with management responsibilities for units, and
> - executive management.

Activity 6

When the organization's capability in one of its core competencies differs significantly from goals, action is taken to improve the capability.

1. Results that differ significantly from measurable goals for each of the organization's core competencies are analyzed for their causes, and actions are proposed if appropriate.

   Examples of conditions under which proposed actions may be taken include:
   - trends in a core competency differ significantly from the measurable goals established for the competency,
   - the impact of competency development activities on one of the organization's core competencies is below expectations,
   - variation in results of competency development activities is too large, or
   - occasional deviations occur from the levels of core competencies that the organization believes it must maintain.

2. Proposed actions are reviewed, approved, taken, and their completion is tracked.

   Examples of proposed actions resulting from organizational competency management activities include:
   - correcting problems in the performance of competency development activities,
   - adjusting the measurable goals for the organization's capability in one of its core competencies, or
   - collecting additional data or designing other analyses to correct misleading results.

Measurement and analysis

Measurement 1   **Measurements are made and used to determine the status of the organization's competency management activities.**

Examples of measurements to determine the status of organizational competency management activities include:
- completeness and timeliness of the data collected,
- accuracy of the data collected,
- adherence to the planned resources and schedule for the organizational competency management activities,
- length of time between data collection and the presentation of analysis results, and
- number of quantitative objectives that must be revised.

Measurement 2   **Measurements are made and used to determine the value of organizational competency management activities.**

Examples of measurements to determine the value of organizational competency management activities include:
- improvements in the profile of the organization's capability across its core competencies,
- relationship between business performance trends and improvements in the organization's capabilities across its core competencies,
- increases in the organization's ability to identify areas of competency development activities needing corrective action,
- increases in the effectiveness with which competency development activities increase the organization's capability in each of its core competencies,
- increases in the speed with which the organization or its units can increase the level of core competencies,
- increases in the speed with which the organization or its units can deploy a new core competency, and
- increases in the organization's ability to achieve quantitative objectives in the growth of its core competencies over time.

Verifying implementation

Verification 1   A responsible individual(s) verifies that quantitative analyses of the organization's capability in its core competencies are conducted according to plan and the organization's documented policies.

These reviews verify that:

1. Organizational competency management activities comply with the organization's policies and stated values.

2. Noncompliance items are handled appropriately.

3. All actions related to organizational competency management activities are periodically reviewed to ensure that they conform to documented policies.

Verification 2   The organization's effectiveness in implementing its organizational competency management activities is periodically reviewed by executive management.

These reviews verify the:

1. Appropriateness of the planned organizational competency management activities at the organizational and unit levels.

2. Progress in performing the planned organizational competency management activities.

3. Results from reviews of the organizational competency management activities against the stated values and appropriate policies.

4. Status of resolution for noncompliance issues.

Verification 3   The definition and use of measures of the organization's core competencies are periodically audited.

Organizational Performance Alignment

A key process area for Level 4:   Managed

The purpose of Organizational Performance Alignment is to enhance alignment of performance results at the individual, team, unit, and organizational levels with the appropriate goals and to quantitatively assess the effectiveness of workforce practices on achieving alignment.

Organizational Performance Alignment involves setting measurable goals for aligning performance at the individual, team, unit, and organizational levels; defining the data and analyses; collecting the data; analyzing trends against objectives; acting on exceptional findings; analyzing the impact of workforce practices on performance alignment; and reporting results.

Objectives are periodically established for aligning performance results across the individual, team, unit, and organizational levels. Both the performance data to be collected and the analyses to be performed are defined. Data are collected, and trends are analyzed and compared to alignment goals. Where performance is misaligned, corrective actions are taken and goals are adjusted, if necessary. Trends in workforce practices and improved capability in the organization's core competencies are analyzed to determine their impact on the alignment of performance results. Feedback on performance alignment is reported to the organization. Management takes action when necessary to ensure progress against performance alignment goals.

Goals

Goal 1   Measurable goals for aligning individual, team, unit, and organizational performance are defined.

Goal 2   Progress toward achieving performance alignment goals is quantified and managed.

Goal 3   The capability of workforce activities to align individual, team, unit, and organizational performance is known quantitatively.

Commitment to perform

Commitment 1   The organization follows a documented policy for collecting and analyzing data relating its workforce activities to performance.

This policy typically specifies that:

1. The organization is committed to continuously improving its overall performance by aligning performance results at the individual, team, unit, and organizational levels.

2. The organization's performance alignment activities serve the business objectives and stated values of the organization.

3. Measurable goals are defined for aligning performance at the individual, team, unit, and organizational levels.

4. Performance measures are defined and collected at the individual, team, unit, and organizational levels.

5. Progress toward performance alignment goals is quantitatively analyzed, reported, and monitored.

**Commitment 1
(continued)**

6. Responsibilities for performance alignment activities are defined and assigned to appropriate organizational roles.

7. Results of performance alignment analyses are used in managing performance and adjusting workforce activities.

8. Human resources professionals are consulted to ensure that collection, use, and access to the data and analyses from performance alignment activities comply with all relevant laws, regulations, and organizational policies.

Commitment 2   **An organizational role(s) is assigned responsibility for coordinating performance alignment activities across the organization.**

Ability to perform

Ability 1   **The organizational role(s) assigned responsibility for performance alignment activities is staffed.**

Ability 2   **Adequate resources and funding are provided for the planned performance alignment activities.**

1. Experienced individuals who have expertise in analyzing performance data are available to assist with analyses of performance alignment.

2. Experienced individuals with appropriate expertise are available to help responsible individuals use the results of performance alignment analyses to adjust performance-based practices to achieve better alignment.

3. Tools for supporting performance alignment activities are made available.

**Ability 2
(continued)**

> Examples of tools to support performance alignment activities include:
> - statistical analysis packages,
> - spreadsheets,
> - performance assessment instruments,
> - databases and other repositories, and
> - textual and graphical reporting tools.

4. The organization's near-term workforce plan allocates resources for its organizational performance alignment activities.

Ability 3

Measurements of performance are collected and made available for analysis.

> The initial measurements required to support this key practice were defined in the Performance Management, Competency-Based Practices, and Team-Based Practices key process areas at the Repeatable and Defined levels. As performance alignment activities mature, additional or refined measures can be defined.

Ability 4

All individuals analyzing and reporting performance data have been trained in quantitative data analysis and other relevant topics.

Ability 5

All individuals involved in performance alignment activities receive appropriate orientation or training.

1. Those who provide performance data receive orientation on the definition and analytic use of the data.

2. Those who receive performance alignment analyses receive orientation in how the results were generated and how to interpret them.

3. All individuals who are responsible for adjusting workforce practices to improve performance alignment receive training in how to make such adjustments.

Activities performed

Activity 1   **Performance alignment activities are planned.**

1. Plans for performance alignment activities are prepared on a periodic basis, typically as part of workforce planning activities.

2. These plans are reviewed with all affected parties.

> Examples of parties affected by the performance alignment plans include:
> - those responsible for coordinating performance alignment activities across the organization,
> - those responsible for performing and reporting performance alignment activities,
> - the group responsible for analyzing and reporting performance alignment analyses,
> - those with management responsibilities for the units, and
> - executive management.

3. The performance alignment plans are documented in the organization's and unit's near-term workforce plans, and used as the basis for managing performance-related workforce activities.

4. The status of performance alignment activities is periodically reviewed, and performance alignment plans are revised when events or conditions necessitate changes.

Activity 2   **Measurable goals are established for aligning performance at the individual, team, unit, and organizational levels.**

**Activity 2
(continued)**

Examples of quantitative objectives for performance alignment include:

- individual performance against team, unit, and organizational performance goals;
- team performance against unit and organizational performance goals;
- unit performance against organizational performance goals;
- contributions by individuals, teams, or units to the achievement of performance goals of other individuals, teams, or units;
- contributions by individuals, teams, or units to improvements in the overall work environment or culture of teams, units, or the organization;
- individual and team development against team, unit, and organizational goals for capability development; and
- individual, team, unit, and organizational performance against continuous improvement goals.

Measurable goals for aligning performance are:

1. Developed by responsible individuals as part of their workforce planning activities.

2. Developed with input from all individuals or groups affected by them.

3. Reviewed and agreed to by all individuals or groups affected by them.

4. Aggregated at the unit and organizational levels into unit and organizational goals.

5. Reviewed and approved by the level of management appropriate to the level of the goal.

6. Included in the strategic and near-term workforce plans of the organization.

7. Reviewed periodically and revised as necessary based on events or the results of performance alignment activities.

Activity 3   **The organization develops a data collection, analysis, and reporting strategy for its performance alignment activities.**

1. The factors to be considered in developing a data collection, analysis, and reporting strategy for performance alignment activities include:

   ❑ individual, team, unit, and organizational performance goals;

   ❑ trends in individual, team, unit, or organizational performance;

   ❑ how data on individual, team, and unit performance are aggregated to represent performance at the next higher organizational level; and

   ❑ the frequency of collecting, reporting, and reviewing individual, team, unit, and organizational data.

2. The data collection, analysis, and reporting strategy for performance at the individual, team, unit, and organizational level is:

   ❑ reviewed and agreed to by all individuals or groups affected by it;

   ❑ reviewed and approved by executive management;

   ❑ periodically reviewed against results and revised, as necessary, to improve the value of the analyses performed;

   ❑ incorporated into the performance alignment plan; and

   ❑ reviewed on a periodic basis and updated as necessary.

3. Data collection, analysis, and reporting activities are conducted according to the strategy and schedule documented in the performance alignment plan for each unit.

Activity 4   **Objective data on performance at the individual, team, unit, and organizational levels are defined, collected, and analyzed for trends in performance alignment.**

> The initial measurements required to support this key practice were defined in the Performance Management, Competency-Based Practices, and Team-Based Practices key process areas. As quantitative analyses of performance alignment mature, additional or revised measures can be defined.

**Activity 4
(continued)**

1. Procedures developed for data that support performance management activities will be observed in collecting, using, and retaining data that support performance alignment activities.

> Refer to Activity 9 of the Performance Management key process area for practices regarding performance management data.

2. Procedures for analyzing performance alignment are defined.

> Examples of analysis activities to be defined include:
> - how data are to be prepared for analysis;
> - which analyses and data manipulation methods are to be used;
> - what tools are to be used in performing these analyses;
> - how performance baselines will be established at the individual, team, unit, and organizational levels;
> - how trends will be determined from baselines;
> - what information will be reported from the analyses;
> - how the results of analyses are to be represented;
> - how the results of analyses will be stored; and
> - how the security and confidentiality of these data will be ensured.

3. Approved uses and restrictions for these data and analyses are defined.

Activity 5

The capability of the organization's performance-related workforce activities to align performance is established quantitatively.

1. Performance baselines at the team, unit, and organizational levels are established from analyses of performance data.

2. Trends in the impact of performance-related workforce activities on aligning performance at the individual, team, unit, and organizational levels are established empirically.

**Activity 5
(continued)**

Examples of performance-related workforce activities that may be analyzed include:

- the effect of performance management activities on aligning performance;
- the impact of coaching and mentoring on understanding how to align performance;
- the impact of salary adjustment criteria and bonus determinations on aligning performance;
- the impact of individual, team, unit, and organizational rewards for aligning performance;
- the effect of strategies for career development on aligning performance;
- the effectiveness of including performance alignment material in training and competency development;
- the effectiveness of participatory commitment procedures on reducing over-commitment;
- the value of designing the work environment to better support performance alignment; and
- the impact of team building on performance alignment.

3. Reports of these analyses are made available for use in managing and improving performance-related workforce activities.

Examples of individuals or entities that would receive reports on organizational performance alignment include:

- those responsible for coordinating workforce activities across the organization,
- those responsible for performing and reporting workforce activities,
- those with management responsibilities for units, and
- executive management.

Activity 6   **When performance alignment at the team, unit, or organizational levels differs significantly from goals, actions are taken to improve the alignment.**

**Activity 6
(continued)**

1. Performance alignment results that differ significantly from established goals are analyzed for their causes, and actions are proposed, if appropriate.

> Examples of conditions under which actions may be proposed include:
> - trends in performance alignment differ significantly from established goals,
> - the impact of performance-related workforce activities in aligning performance is below expectations,
> - variation in results of performance alignment activities is too large, or
> - deviations occur from the performance alignments that the organization believes it must maintain.

2. Proposed actions are submitted for consideration to the appropriate individual(s) or groups, which may include:

   ❑ individual(s) responsible for the performance of relevant workforce activities at the team, unit, or organizational level, or

   ❑ individual(s) responsible for coordinating relevant workforce activities at the organizational level.

> Examples of proposed actions resulting from performance alignment activities include:
> - analyzing the causes for misaligned performance and making changes to work processes, business objectives, or individual or group criteria to fix the misalignment;
> - making adjustments to workforce practices or activities that lead to misalignments of performance;
> - improving workforce practices to improve the alignment of performance results;
> - correcting problems in performance alignment practices or activities;
> - adjusting the goals for performance alignment; or
> - evaluating the measures and analyses to determine if they are producing misleading results and need to be revised.

Measurement and analysis

Measurement 1   **Measurements are made and used to determine the status of the organization's performance alignment activities.**

> Examples of status measurements of performance alignment activities include:
> - the completeness and timeliness of the data collected,
> - the accuracy of the data collected,
> - adherence to the planned resources and schedule for performance alignment activities,
> - length of time between data collection and the presentation of analysis results, and
> - number of quantitative objectives that must be revised.

Measurement 2   **Measurements are made and used to determine the value of performance alignment activities.**

> Examples of measurements to determine the value of performance alignment activities include:
> - increases in the organization's ability to correct misaligned performance or other results needing corrective action,
> - increases in the speed with which the organization or its units can deploy and align new performance objectives, and
> - increases in the organization's ability to align its performance objectives and results over time.

Verifying implementation

Verification 1   A responsible individual(s) verifies that quantitative analyses of the organization's performance alignment are conducted according to plan and the organization's documented policies.

These reviews verify that:

1. Performance-related workforce activities comply with the organization's policies and stated values.

2. Noncompliance items are handled appropriately.

3. All actions related to performance alignment activities are periodically reviewed to ensure that they conform to documented policies.

Verification 2   **The organization's effectiveness in implementing its organizational performance alignment activities is periodically reviewed by executive management.**

These reviews verify the:

1. Appropriateness of performance alignment activities at the individual, team, unit, and organizational levels.

2. Progress in performing performance-related workforce activities.

3. Results from reviews of performance alignment activities against the organization's policies and stated values.

4. Status of resolution for noncompliance issues.

Verification 3   **The definition and use of measures of individual, team, unit, and organizational performance are periodically audited.**

People
Capability Maturity Model

Level 5: Optimizing

The key process areas at the Optimizing level cover the issues that both the organization and the staff must address in continuously improving their capability. Continuous improvement of both personal and organizational competence is achieved. Continuous improvement of the organization's methods for developing its competencies and performance is enabled through both quantitative feedback and the adoption of innovative practices and technologies.

Key process areas

Personal Competency Development	**L5-1**
Coaching	**L5-13**
Continuous Workforce Innovation	**L5-25**

Personal Competency Development

A key process area for Level 5: Optimizing

The purpose of Personal Competency Development is to provide a foundation for professional self development.

Personal Competency Development consists of a voluntary program for continuously improving individual work processes. This program involves developing goals and plans for personal work activities, establishing and using defined personal processes, measuring and analyzing the effectiveness of these personal processes, and implementing improvements to them.

The organization establishes a voluntary program to support individual initiative in continuously improving personal work processes. Individuals define their work processes and use these defined processes to plan their work. Individuals measure their work processes and set measurable goals for improving their performance. Individuals analyze their work processes to identify opportunities for improvement and they identify the knowledge and skills needed to make these improvements. Individuals improve their work processes and eliminate the causes of defects in their work.

The organization adjusts the application of workforce practices to support personal competency development. Improvements in individual work processes are recognized.

Goals

Goal 1   Individuals know their capability in each of the competencies involved in their work.

Goal 2   Individuals continuously improve their knowledge and skills in the competencies involved in their work.

Goal 3   Participation in improving personal competencies is organization-wide.

Commitment to perform

Commitment 1   The organization follows a documented policy for continuously improving individuals' personal competencies.

The policy typically specifies that:

1. Personal competency development activities serve the business objectives and stated values of the organization.

2. Individuals are encouraged to continuously improve the personal work processes involved in their work.

3. Individuals participating in personal competency development activities set measurable goals for continuous improvement of their individual work processes.

4. Support is provided for assisting individuals to continuously improve their competencies.

5. All individuals are able to participate on a voluntary basis in continuously improving their individual work processes.

Commitment 2   An organizational role(s) is assigned responsibility for coordinating activities for personal competency development across the organization.

Ability to perform

Ability 1   **Adequate resources and funding are provided for continuously improving individual work processes.**

1. Experienced individuals who have expertise in individual work process improvement are available for assisting in activities for continuous competency development.

2. Tools for supporting activities for continuous improvements in individual work processes are made available.

> Examples of tools to support activities for continuous improvements in individual work processes include:
> - data collection tools,
> - statistical analysis packages,
> - spreadsheets,
> - databases and other repositories, and
> - reporting and communication tools.

3. The organization's near-term workforce plan allocates resources for continuous personal competency development activities.

Ability 2   **Those engaging in personal competency development activities receive training in techniques for continuously improving individual work processes.**

**Ability 2
(continued)**

> Examples of training to support continuous improvement of individual work processes include:
> - the Personal Software Process (PSP) [Humphrey95a, 95b];
> - advanced measurement and analysis of personal performance;
> - methods for planning, defining, analyzing, and measuring individual work processes;
> - knowledge and skills related to personal work processes;
> - statistical analysis;
> - techniques for continuously improving work processes; and
> - change management.

Activities performed

Activity 1

A program for personal competency development is established that empowers individuals to continuously improve their individual work processes.

1. The program for personal competency development is established for voluntary participation.

2. The availability of support for personal competency development is communicated throughout the organization.

3. Activities for personal competency development are included in the organization's strategic and near-term workforce plans.

4. Changes are made to individual performance or development plans based on the activities performed to improve individual work processes and the results of these activities.

Activity 2

Individuals define the processes they use to perform their work.

1. Processes defined at the team, unit, or organizational level provide a framework for defining individual work processes.

**Activity 2
(continued)**

2. Individuals tailor the team, unit, or organizational processes to establish defined interfaces for their individual work processes.

3. Individuals analyze their work activities to define the product(s) that they must personally produce for use at the team, unit, or organizational levels.

4. Individuals describe the processes that they use to perform their work activities.

> Examples of process descriptions include:
> – textual listings of work activities,
> – flowcharts of work activities,
> – procedural descriptions of work activities, and
> – other textual or graphical descriptions of work.

5. Individuals continuously measure, analyze, and improve their work processes and their definitions.

Activity 3

Where appropriate, individuals plan their activities using defined individual work processes and historical individual performance data.

> Planning work activities is most appropriate in situations where performance of an individual's work process involves a number of steps and takes place over an extended period. It is less relevant where:
> – an individual performs many different short-duration activities,
> – an individual's work processes cannot be defined, or
> – an individual is constantly reacting to external inputs.

1. Individuals plan their work activities based on their defined work processes.

2. Individuals estimate the effort and duration needed to accomplish their work.

3. Individuals use their defined personal process and available historical personal data as the basis for making their estimates.

4. Individuals continuously improve their planning activities by analyzing the accuracy of their plan and adjusting their planning process.

Activity 4

Individuals measure the performance of their individual work processes.

1. Applicable measurements defined at the team, unit, or organizational level provide a framework for measuring the performance of individual work processes.

2. Individuals tailor applicable team, unit, or organizational measurements so that they can utilize data gathered on the performance of their individual work processes.

3. Individuals define additional measurements as needed to characterize the performance of their work processes more completely.

4. Individuals develop a historical database of measurements characterizing the performance of their work processes.

5. Individuals continuously update and improve the measurements of their work processes.

Activity 5

Individuals establish measurable personal goals for continuous improvements in their work processes.

1. Measurable goals are set for improving the overall performance of assigned work responsibilities and the performance of individual work processes.

2. Individuals review their performance improvement goals with others who have expertise in the work processes for which the goals have been set.

Activity 6

Individuals analyze the measured performance of their work processes to identify opportunities for improvement.

1. Individuals determine the capability of each of their work processes to accomplish its intended result.

> The capability of an individual work process is the range of outcomes that occur when it is performed repeatedly. These outcomes can include the productivity of the performance or the quality of the product or service produced.

**Activity 6
(continued)**

2. The capabilities of individual work processes are analyzed to determine their potential for improvement.

3. Individual work processes are prioritized according to the potential they present for improving work performance.

Activity 7

Individuals identify the knowledge and skills they need to improve their work processes.

Examples of sources of information on knowledge and skills include:
- descriptions of personal work activities,
- descriptions of knowledge and skills maintained by the organization,
- trainers and training materials,
- coaches,
- mentors,
- professional literature, and
- advice from role models and experts.

Activity 8

Individuals continuously improve their work processes.

1. Highest priority work processes are selected for improvement activities.

2. Individuals seek training or other development opportunities in the knowledge and skills required to improve the performance of their work processes.

3. Individuals define new processes for improving their work, and they experiment with using these processes.

4. Individuals measure new work processes to determine their ability to improve the individual's work performance.

5. Work processes that improve individual work performance are incorporated into the individual's defined work process.

6. Appropriate measures of improved work processes are defined and collected.

Activity 9   **Individuals take corrective action as needed to correct defects and eliminate the causes of defects in their work.**

1. Individuals collect data on defects in their work.

2. Individuals correct defects in their work as quickly as possible after the defects are detected.

3. Individuals analyze data on the defects in their work to determine better ways to find and prevent defects.

4. Individuals implement methods in their work that identify defects as quickly as possible after they are made.

5. Individuals analyze the root causes of defects in their work, prioritize these causes, and take steps to eliminate the most serious or frequent causes.

Activity 10   **The application of the organization's workforce practices is adjusted as needed to accommodate improvements in individual work processes.**

> Examples of areas where workforce practices may need to be adjusted based on improvements in individual work processes include:
> - performance management,
> - rewards,
> - compensation,
> - training,
> - career development,
> - work environment,
> - team-based practices,
> - competency information bases,
> - role definitions, and
> - organizational competency management.

1. Goals and data on individual work processes are confidential to each individual and should not be published or otherwise distributed by anyone without the agreement of the individual.

**Activity 10
(continued)**

2. Goals and data for improving individual work processes are not used in performing any workforce activities without the agreement of the individual.

3. Workforce practices related to the individual are adjusted as necessary to reflect:

   ❑ changed personal goals,

   ❑ improved work processes,

   ❑ improved measures of performance, and

   ❑ improved work performance.

Activity 11

Records of activities for continuously improving individual work processes are maintained.

1. Individuals agree to the use of data related to personal competency development before the data are aggregated at the team, unit, or organizational levels.

2. Information about the initiation, status, and implementation of proposals for continuous improvement of individual work processes is maintained.

3. Information about the effectiveness of techniques for continuously improving individual work processes is collected, analyzed, reported, and maintained.

4. Procedures are followed to ensure the confidentiality of data on improvements to individual work processes.

Activity 12

The accomplishments of individuals in continuously improving their work processes are recognized.

> Examples of recognition for successful improvements in individual work processes include:
> - awards,
> - public recognition in meetings or newsletters,
> - privileges,
> - financial considerations, and
> - other perquisites.

Measurement and analysis

Measurement 1   **Measurements are made and used to determine the status of activities for personal competency development.**

> Examples of status measurements for personal competency development include:
> - trends in participation in personal competency development activities;
> - number of individuals trained in techniques for continuously improving individual work processes;
> - number of individuals actively engaged in personal competency development activities;
> - number or percentage of individuals using defined individual work processes for their principal work activities;
> - number or percentage of individuals gathering data on their individual work processes;
> - number of individuals who have successfully used techniques for continuously improving individual work processes;
> - reduction in defects in software or other products,
> - number and types of adjustments made to workforce practices;
> - rate at which goals for individual work process improvement are being accomplished; and
> - overall activity in changing individual work processes, including number, type, and size of changes.

Measurement 2   **Measurements are made and used to determine the value of personal competency development activities.**

> Examples of measurements for determining the value of personal competency development activities include:
> - improvements in personal performance results;
> - improvements in team or unit performance results;
> - improvement in the quality of the software, products, and/or services to which the individual contributes; and
> - enhanced accomplishment of the performance objectives for the individual, team, unit, or organization.

Verifying implementation

Verification 1

A responsible individual(s) verifies that coaching activities are conducted according to plan and the organization's documented policies.

These reviews verify that:

1. Personal competency development activities comply with the organization's policies and stated values.

2. Noncompliance items are handled appropriately.

3. All actions related to personal competency development are periodically reviewed to ensure that they conform to documented policies.

Verification 2

The organization's effectiveness in implementing activities for personal competency development is periodically reviewed by executive management.

These reviews verify the:

1. Appropriateness of the activities for personal competency development.

2. Progress in performing the activities for personal competency development.

3. Results from reviews of the activities for personal competency development against the organization's values and appropriate policies.

4. Status of resolution for noncompliance issues.

Coaching

A key process area for Level 5:   Optimizing

The purpose of Coaching is to provide expert assistance to enhance the performance of individuals or teams. Coaches engage in close relationships with individuals or teams to guide development of skills that improve performance.

Coaching involves selecting appropriate coaches, analyzing data on personal or team performance, providing guidance on methods for improving performance, and evaluating progress toward goals for improving performance.

Coaching opportunities are pursued where coaching can provide a justifiable improvement to individual or team performance. Criteria are developed for selecting coaches. Coaches are trained in coaching skills and are assigned to an individual or team according to their expertise. Individuals or teams are provided orientation on how to best use a coach to improve performance. Coaches use data on individual or team performance to analyze skills, and they help individuals or teams set measurable goals for improving skills and performance. Coaches also track performance continuously and provide specific guidance on improving skills and performance. Individuals or teams practice the skills they are working on with the coach. Coaches provide or make inputs to appropriate rewards for improvement. Coaching activities are evaluated and improvements are made.

Goals

Goal 1   Coaches are selected for their expertise and prepared for their responsibilities.

Goal 2   Coaches work with individuals to improve their personal competency and performance.

Goal 3   Coaches work with teams to improve their team-based competencies and performance.

Commitment to perform

Commitment 1   The organization follows a documented policy for coaching activities.

The policy typically specifies that:

1. Coaching activities serve the business objectives and stated values of the organization.

2. Coaching will be instituted in those situations where its impact on enhancing performance appears to justify the investment.

3. Managers are encouraged, but not required, to perform coaching activities.

4. Coaching activities are encouraged, but not imposed, for individuals or teams.

5. Coaching activities are included in the organization's strategic and near-term workforce plans.

Commitment 1 (continued)	6. Documented procedures are developed and used to guide coaching activities. These procedures typically specify:

- ❏ requirements for the selection, training, and assignment of coaches;

- ❏ conditions under which coaching relationships are to be established, changed, or terminated; and

- ❏ requirements for periodic evaluation of coaching to ensure its effectiveness and to identify improvements.

Commitment 2 **An organizational role(s) is assigned responsibility for coordinating coaching activities across the organization.**

> A supplementary or alternate approach to central coordination of coaching activities across the organization is to coordinate coaching activities within each of the organization's core competencies.

Ability to perform

Ability 1 **The organizational role(s) assigned responsibility for coordinating coaching activities is staffed.**

Ability 2 **Adequate resources and funding are provided for coaching activities.**

1. Experienced individuals are made available to coach.

2. Time is made available for coaching and practice activities.

3. Resources to support coaching activities are made available.

**Ability 2
(continued)**

Examples of resources needed to support coaching include:
- data collection and storage capabilities,
- statistical analysis capabilities,
- tools for training task performance,
- time for practice sessions,
- support for performance evaluation, and
- rewards for improvement.

Ability 3

**Data on individual or team performance are available to the
coach for use in analyzing and improving performance.**

Ability 4

**Individuals selected to be coaches have been trained in relevant
coaching objectives, techniques, and skills.**

Examples of coaching skills in which individuals selected to be coaches
are trained include:
- how to conduct a coaching relationship,
- coaching methods and techniques,
- performance observation and analysis,
- team performance and coordination,
- goal setting and motivating performance,
- providing performance feedback,
- using quantitative data in analyzing performance,
- performance improvement methods,
- practice sessions and methods,
- methods for knowledge and skill development,
- methods for improving team coordination,
- handling performance problems or plateaus, and
- rewarding performance improvement.

Ability 5

**Individuals or teams to be coached receive orientation in the
coaching relationship.**

**Ability 5
(continued)**

> Examples of issues to be covered in orientation include:
> - objectives of coaching,
> - attributes of effective coaching,
> - motivating high performance,
> - establishing goals and expectations,
> - using practice sessions, and
> - sharing and using personal performance data.

Activities performed

Activity 1

Coaching is established in situations that are judged to offer sufficient performance benefits.

1. Opportunities for coaching are identified.

   Opportunities for coaching include:

   ❏ individuals engaged in activities for personal competency development;

   ❏ teams developing team-based capabilities and competencies; and

   ❏ other appropriate situations, including requests from an individual or team for a coach.

2. Identified coaching opportunities are evaluated to determine whether coaching support could significantly enhance individual or team performance.

   > Examples of performance enhancements that coaching could affect include:
   > - increased knowledge and skills in core competencies;
   > - improved efficiency or productivity;
   > - improved quality or safety;
   > - improved coordination;
   > - reduced costs, defects, or waste;
   > - improved delivery or service; and
   > - improved reputation or customer loyalty.

Activity 1   3. Coaching is established in those situations where the enhancement in
(continued)   performance will justify the investment in coaching support.

Activity 2   **Coaches are selected and prepared for their assignments.**

1. Individuals with expertise in appropriate areas are invited to apply
    to become coaches.

> Coaches can be managers or other individuals with appropriate
> expertise in an area where individuals are engaged in personal
> competency development or where teams could improve their team-
> based competencies and performance.

2. Criteria are defined for selecting coaches.

> Examples of criteria for selecting coaches include:
> - extensive experience in relevant subject matter and processes,
> - expert knowledge in relevant subject matter and processes,
> - interpersonal and communication skills,
> - successful mentoring ability,
> - business and organizational judgment,
> - ability to provide a successful role model,
> - ability to motivate,
> - management experience,
> - availability,
> - commitment to improving performance, and
> - ability to analyze components of process performance.

3. Candidates who have applied for coaching assignments are evaluated
    against the criteria, and those qualified are selected to become
    coaches.

4. Selected coaches are trained in coaching skills and responsibilities.

Activity 3   **Coaches are assigned to individuals or teams according to
defined criteria.**

**Activity 3
(continued)**

> Examples of criteria for matching coaches with individuals or teams include:
> – task, position, or career experiences;
> – specific knowledge and skills to be improved;
> – common backgrounds;
> – ability to match schedules; and
> – personalities or interests.

Activity 4   **Coaches and the individuals or teams being coached establish a coaching relationship.**

1. Coaches and the individuals or teams being coached receive appropriate training or orientation before entering into coaching relationships.

2. Coaches and the individuals or teams being coached establish agreements on which their relationship will develop.

> Examples of issues they should reach agreement on include:
> – what they both expect out of the coaching relationship,
> – whether they will meet on a periodic or event-driven basis,
> – performance standards against which progress will be evaluated,
> – how they will conduct their meetings, and
> – how they will communicate between meetings.

3. They evaluate and agree on the specific skills that the individual or team intends to develop through coaching.

Activity 5   **Coaches and the individuals or teams being coached set measurable goals for improving performance.**

1. The individual's or team's current performance is measured.

2. Skills that the individual or team needs to develop to improve performance are identified.

**Activity 5
(continued)**

3. Measurable goals are set for improving performance on the targeted skills.

> Examples of issues to be resolved in setting measurable goals include:
> -   which skills are to be improved,
> -   how these skills relate to performance,
> -   the order in which different skills will be addressed,
> -   how skill improvement will be measured,
> -   how much skill needs to be developed and at what rate, and
> -   how performance related to skill improvements will be measured.

Activity 6

Coaches monitor individual or team performance.

1. Individuals or teams share their personal and/or team performance with their coach.

2. Coaches maintain an awareness of the performance of their individuals or teams.

3. Coaches hold regular discussions about performance trends with the individuals or teams being coached.

4. New measures are defined and collected if they will better characterize performance.

Activity 7

Coaches guide improvements in the skills of individuals and/or teams.

1. Coaches work directly with individuals to develop or enhance skills.

2. Coaches use the individual's or team's quantitative performance data to guide their coaching.

3. Coaching is provided in a positive rather than punitive atmosphere.

4. The effectiveness of skill performance is measured and analyzed continuously.

Activity 8

Individuals and/or teams practice the skills that they are working to improve.

1. To the extent possible, work is organized to provide individuals or teams with the opportunity to practice the skills that they are working to improve.

**Activity 8
(continued)**

2. Coaching and practice activities are coordinated with those to whom the individual or team is accountable to ensure support for moving the skills being coached into actual practice.

3. Performance is measured to provide feedback on the effectiveness of the skills that the individual or team are working to improve.

4. Coaches are made aware of work performance.

Activity 9

Coaches reward improved performance by individuals or teams.

> Examples of rewards provided by coaches include:
> – compliments and other verbal reinforcements,
> – public recognition,
> – financial rewards,
> – achievement awards,
> – input to performance management activities,
> – input to compensation activities,
> – input to recognition and reward activities, and
> – input to promotion and career development.

Activity 10

Coaches and individuals are provided guidance on how to improve their coaching relationship.

1. An advisor should be available to coaches or individuals for discussions on how to make coaching more effective.

> Examples of guidance provided on coaching include:
> – how to initiate coaching,
> – when and how frequently to have training sessions,
> – potential topics to be discussed,
> – how to determine the coaching needs of individuals,
> – methods of coaching,
> – how to track progress toward goals,
> – how to handle problems, and
> – how to overcome problems in the coaching relationship.

**Activity 10
(continued)**

2. Periodic meetings of coaches are conducted to improve coaching skills.

> Examples of benefits from meetings among coaches include:
> - sharing lessons learned,
> - discussing coaching problems and issues, and
> - gaining access to successful coaches.

Activity 11

Actions are taken to improve coaching relationships.

1. Coaches and the individuals or teams being coached periodically review the progress that they are making toward their agreed-upon objectives.

> Meetings may be conducted periodically to allow coaches and those being coached to express concerns or identify potential improvements in the coaching effort.

2. Actions by coaches or by those being coached that could improve the coaching relationship are identified.

> Examples of actions to improve the coaching relationship include:
> - reestablishing the basis for the specific coaching relationship,
> - planning more effective training sessions or practices,
> - getting additional advice or training on coaching,
> - assigning a new coach to the individual, and
> - working with management to address priority or motivation issues.

3. Actions with the greatest potential for improving the coaching relationship are adopted.

Activity 12   **Coaches are recognized for successful coaching.**

> Examples of recognition for successful coaches include:
> - awards,
> - public recognition in meetings or newsletters,
> - privileges,
> - financial considerations, and
> - acknowledgment for success of coaching related to performance or career objectives.

Measurement and analysis

Measurement 1   **Measurements are made and used to determine the status of coaching activities.**

> Examples of status measurements for coaching activities include:
> - the number of coaching relationships established,
> - the rate at which candidates apply to become coaches,
> - the rate at which new coaches are trained and assigned,
> - the rate at which coaches have helped those they coach achieve performance goals,
> - the evaluation of coaches' activities by those they coach, and
> - the number of problems and improvements made in coaching relationships.

Measurement 2   **Measurements are made and used to determine the value of coaching.**

**Measurement 2
(continued)**

> Examples of measurements for determining the value of coaching
> activities include:
> - growth in core competencies of those being coached,
> - growth in the productivity and efficiency of those being coached,
> - growth in the quality of the work performed by those being
>   coached,
> - improvement in the coordination within teams being coached, and
> - improvements reported by customers.

Verifying implementation

Verification 1

**A responsible individual(s) verifies that coaching activities are
conducted according to the organization's workforce plans and
documented policies.**

These reviews verify that:

1. Coaching activities comply with the organization's policies and
   values.

2. Noncompliance items are handled appropriately.

Verification 2

**The organization's effectiveness in implementing coaching is
periodically reviewed by executive management.**

These reviews verify the:

1. Appropriateness of coaching activities.

2. Progress in performing coaching activities.

3. Results from reviews of coaching activities against the organization's
   stated values and appropriate policies.

4. Status of resolution for noncompliance issues.

Continuous Workforce Innovation

A key process area for Level 5:   Optimizing

The purpose of Continuous Workforce Innovation is to identify and evaluate improved workforce practices and technologies, and implement the most promising ones throughout the organization.

Continuous Workforce Innovation involves establishing a mechanism for proposing improvements in workforce activities, identifying needs for new practices, surveying and evaluating innovative practices and technologies, conducting exploratory trials of new practices and technologies, and implementing the most beneficial ones across the organization.

Innovative workforce practices and technologies include new channels for recruiting, new selection techniques, innovative ways to manage performance, innovative technologies for communication, creative compensation schemes, introducing new media and methods for developing knowledge and skills, alternative career choices, and new ways of organizing and empowering the workforce.

Effort toward implementing innovative workforce practices is included in the strategic and near-term workforce plans. The group assigned responsibility for coordinating continuous workforce innovation stays aware of the current effectiveness of the organization's workforce activities. A procedure for proposing improvements to workforce activities is developed and communicated to the workforce. The coordinating group continually reviews internal proposals and external developments in workforce practices and technology to determine which innovations offer the greatest opportunity to improve the competency and performance of the organization. The most promising innovations are

---

tried and, if successful, they are implemented across the organization. The effectiveness of these improved practices is evaluated quantitatively and the results are communicated to the workforce.

Goals

Goal 1   Innovative workforce practices and technologies are evaluated to determine their effect on improving core competencies and performance.

Goal 2   The organization's workforce practices and activities are improved continuously.

Goal 3   Participation in improving the organization's workforce practices and activities is organization-wide.

Commitment to perform

Commitment 1   The organization follows a documented policy for continuously improving workforce practices and activities.

This policy typically specifies that:

1. Continuous workforce innovation serves the business objectives and stated values of the organization.

2. The organization sets and tracks measurable goals for improvement to be achieved through adoption of innovative workforce practices.

3. Improvements in workforce activities are directed toward:

**Commitment 1
(continued)**

❏ improving the organization's capability in its core competencies;

❏ aligning performance at the individual, team, unit, and organizational levels; or

❏ improving the efficiency of workforce activities.

4. The organization maintains an awareness of new developments in workforce practices and technologies.

5. The organization evaluates promising new workforce practices and technologies and transitions the most effective ones into ordinary use.

6. All members of the workforce are able to participate in continuously improving workforce activities.

Commitment 2 **An organizational role(s) is assigned responsibility for coordinating the activities for continuous workforce innovation across the organization.**

Examples of how continuous workforce innovations might be coordinated across the organization include:
- a committee reviewing recommendations submitted by individuals or groups for improvements in workforce practices,
- specialists in each area working to improve practices in their area,
- a team of experts in different areas working together to develop or deploy innovative practices, or
- workforce experts working independently or as a team with technologists to develop innovative workforce technologies in such areas as training or group work.

Ability to perform

Ability 1 **The organizational role(s) assigned responsibility for coordinating activities for continuous workforce innovation is staffed.**

**Ability 1
(continued)**

The role(s) coordinates and helps to:

1. Review suggested improvements in workforce practices submitted by individuals or groups.

2. Identify needed improvements in workforce practices and explore potential applications of innovative workforce practices and technology.

3. Select and plan for the implementation of improved workforce practices and technologies.

4. Acquire, install, and customize new workforce practices and technologies.

5. Communicate and coordinate with researchers on new developments in workforce practices and technologies that may have potential benefit within the organization.

6. Communicate with suppliers of workforce technology on problems and enhancements.

Ability 2

Adequate resources and funding are provided for the planned activities for continuous workforce innovation.

1. Experienced individuals with expertise in specialized areas are available to help in evaluating, planning, and supporting initiatives for innovating in workforce practices and technology.

> Examples of specialized areas for continuous workforce innovation include:
> - traditional workforce functions like selection or training,
> - computers and software,
> - advanced communication technology,
> - computer-aided training technology,
> - groupware and team coordination technologies,
> - knowledge assessment methods,
> - performance enhancement methods,
> - computer-supported cooperative work, and
> - organizational design strategies.

**Ability 2
(continued)**

2. Tools to support continuous workforce innovation are made available.

> Examples of tools to support continuous workforce innovation include:
> – workstations and software,
> – workgroup software and other groupware technologies,
> – instructional design technology,
> – communication technology, and
> – subscriptions to on-line databases.

3. Time and support are made available for evaluating suggestions and conducting trial efforts.

4. Funding and resources are available for acquiring advanced workforce technologies for evaluation and for running trial projects using the most promising practices and technologies.

5. Funding and resources are available to support the facilities and infrastructure needed to install and maintain advanced workforce practices and technology.

Ability 3

Data are available for evaluating needs for continuous workforce innovations.

> See the Organizational Competency Management and Organizational Performance Alignment key process areas at the Managed Level.

Ability 4

Those responsible for performing the activities for continuous workforce innovation receive training in relevant evaluation methods and continuous improvement techniques.

**Ability 4
(continued)**

Examples of relevant methods and techniques include:
- advanced workforce practices,
- continuous improvement techniques,
- change management,
- field experimentation,
- technology evaluation,
- usability analysis, and
- workforce performance analysis.

Ability 5   **Individuals receive training or orientation in the workforce practices and technologies adopted by the organization.**

1. Individuals who are responsible for performing new workforce activities are given required training in how to perform these new responsibilities.

2. Individuals who will be subject to new workforce activities are provided orientation to those new activities.

3. Individuals who will use new workforce technologies receive required training in the use of these technologies.

4. Consulting support is available on a continuing basis in the use of new workforce technologies.

Activities performed

Activity 1   **Activities for continuous workforce innovation are planned.**

1. Continuous workforce innovation activities are planned as part of developing the organization's near-term and strategic workforce plans.

2. Planning for continuous workforce innovation activities is based on units' and the organization's measurable goals for:

**Activity 1
(continued)**

❏   improving capability in core competencies,

❏   aligning performance, and

❏   anticipated current and future workforce needs.

3.   Measurable goals for continuous workforce innovation will be
      established and actions to achieve them will be prioritized.

4.   Plans for continuous workforce innovation at the unit and
      organizational levels typically cover:

❏   activities to be performed,

❏   assigned responsibilities,

❏   resources to be allocated,

❏   any continuous workforce innovation teams to be created and
      their assignments for addressing innovations in specific areas,

❏   near-term priorities for innovations, and

❏   long-term strategy.

5.   The plan is reviewed with all affected parties.

> Examples of parties affected by the plan for continuous workforce
> innovation include:
> –   those responsible for coordinating workforce activities across the
>   organization,
> –   those responsible for performing and reporting workforce
>   activities,
> –   the group responsible for analyzing and reporting quantitative
>   workforce analyses,
> –   those with management responsibilities for units,
> –   executive management,
> –   those responsible for computing facilities, and
> –   those responsible for training and educational technology.

6.   The plan for continuous workforce innovation is documented and
      used as the basis for managing the activities for continuous workforce
      innovation.

Activity 1 **(continued)**	7. The plan for continuous workforce innovation is reviewed periodically and revised as necessary.
	8. Methods for participating in the activities for continuous workforce innovation are communicated to the workforce.
Activity 2	**Individuals and teams are empowered to continuously improve their performance of workforce activities.**

1. The workforce is informed of their ability to continuously improve the performance of workforce activities that they have been trained to execute.

2. When individuals or teams believe they have developed an innovative workforce practice or activity, they should discuss it with those who have expertise in the area of the practice.

Examples of those with whom workforce innovations can be discussed include:

- – those responsible for coordinating specific workforce activities across the organization,
- – human resources professionals,
- – trainers in the relevant area, and
- – experts in performing the activity.

---

3. Individuals or teams should discuss any improved or innovative practices that are governed by laws or regulations with a human resources professional.

Activity 3	**A continuous improvement program is established that encourages individuals and teams to propose improvements to workforce practices and activities.**

1. Individuals and teams are encouraged to submit workforce improvement proposals concerning their improvements and innovations for possible adoption across the organization.

Activity 3 (continued)

2. Workforce improvement proposals can be submitted by any individual or team and can address any area of workforce practices.

> Examples of sources for workforce improvement proposals include:
> - findings and recommendations from assessments of workforce activities,
> - the organization's goals for continuous workforce improvement,
> - analysis of data on workforce issues,
> - analysis of data on project performance,
> - benchmarking of workforce activities in other organizations,
> - the adoption of new technologies,
> - analysis of defect data indicating shortfalls in knowledge and skills, and
> - the measured effectiveness of workforce activities.

3. Each workforce improvement proposal is evaluated for expected benefits, a decision is made on whether to implement it, and the decision rationale is documented.

> Examples of benefits from workforce improvements include:
> - increased capability in core competencies,
> - improved work processes,
> - improved performance alignment,
> - improved efficiency of workforce activities, and
> - improved business measures such as productivity, quality, or cost reduction.

4. Workforce improvement proposals selected for implementation in areas that are regulated by the government or organizational policy are submitted to the human resources group and executive management for approval.

5. Workforce improvements are prioritized and are communicated to all affected individuals before being implemented.

6. Implementation of the workforce improvement actions resulting from the proposals is planned and tracked.

**Activity 3
(continued)**

7. The receipt of workforce improvement proposals is acknowledged, and a notification of disposition is provided to each submitter.

Activity 4   **The organization establishes a program for evaluating innovative workforce practices and technologies.**

Examples of mechanisms for evaluating innovations include:

– a corporate group assigned responsibility for evaluating potential workforce innovations,

– coordinators or experts in each area of workforce practices evaluating innovations in their area of expertise,

– an ownership team for an area of workforce practices periodically reviewing innovations in their area for possible adoption,

– a specially formed team to review one or more innovations in a specific area of workforce practices, and

– external consultants with expertise in a workforce innovation.

Individuals or teams assigned responsibility for evaluating continuous workforce innovations:

1. Communicate with others who are responsible for implementing or overseeing workforce activities in order to identify needs for innovation.

2. Review the organization's standard workforce activities in all areas to identify those most likely to benefit from innovative practices or technology.

3. Evaluate the quantitative analyses of workforce efficiency, growth in the organization's capability in its core competencies, and performance alignment for indications of:

   ❑ areas that could benefit from innovative workforce practices or technologies, and

   ❑ workforce activities whose efficiency, impact on competency growth, or performance alignment needs to be improved.

4. Prioritize the organization's needs for innovation in workforce activities.

5. Identify new workforce practices or technologies that may be appropriate to the organization's needs:

Activity 4 (continued)

❏ A periodic search is made to identify commercially available workforce technologies that meet identified and anticipated needs.

❏ Benchmark studies are periodically conducted to identify best workforce practices and technologies being used in other organizations.

❏ Systematic efforts are made to maintain awareness of leading-edge technical work and trends in workforce practices and technologies.

❏ Areas where new technologies have been used successfully are identified, and data and documentation of experience with using them are collected and reviewed.

6. Collect information on new workforce practices and technologies to determine their applicability to the organization's future needs.

Activity 5

Innovative workforce practices and technologies are identified and selected for evaluation.

1. Those who perform workforce activities are kept informed of innovative workforce practices and technologies.

   ❏ Information on innovative workforce practices and technologies being used in other organizations is collected and made available.

   ❏ Information on innovative workforce practices and technologies being adopted or used in parts of the organization is disseminated.

2. Individuals or teams responsible for improvements in an area of workforce activities review information on innovative practices or technologies in their area and select the most promising for further evaluation.

3. Preliminary cost/benefit analyses are performed for the anticipated impact of selected workforce practices or technologies, and those with the highest potential benefits are selected for trial use.

4. Requirements and plans for testing and trial use of selected workforce practices or technologies are defined and documented.

Activity 6

Trial efforts for evaluating innovative workforce practices or technologies are conducted, where appropriate, before these innovations are introduced into normal use.

**Activity 6
(continued)**

1. Trial efforts are conducted to determine the feasibility and economic impact of untried workforce practices or technologies.

2. The objectives, evaluation criteria, and activities for the trial effort are planned and tracked.

3. The plan for conducting a trial effort is reviewed and approved by all affected parties.

> Examples of affected parties for trial tests include:
> - those responsible for administering innovative workforce practices,
> - those affected by innovative workforce practices or technologies,
> - those who must use innovative workforce technologies, and
> - those who must provide support for innovative workforce practices or technologies.

4. Those responsible for innovative workforce practices or technologies provide consultation and assistance to the trial effort.

5. The trial effort is designed to show the strengths and weaknesses that an innovative practice or technology would exhibit in broad use in the organization.

6. The results of the trial effort are collected, analyzed, and documented:

   ❑ Lessons learned and problems encountered during the trial are documented.

   ❑ The benefits and impacts of broader use in the organization are estimated, and risks are assessed.

7. Adjustments to a proposed workforce practice or technology are made and documented during the trial effort to optimize its implementation.

8. A decision is made whether to terminate the effort, proceed with broad-scale implementation of the practice or technology, or replan and continue the trial effort.

Activity 7   **Innovative workforce practices or technologies that demonstrate their effectiveness in trial efforts are disseminated throughout the organization.**

1. A plan is developed for the implementation of effective innovative workforce practices or technologies.

2. The strategy for collecting data to measure and track the impact of an innovative workforce practice or technology is documented, reviewed by all affected parties, and agreed to.

3. Training courses are updated to reflect the installation of innovative workforce practices or technologies, and training is provided before installing them.

4. Consulting support is established before installing innovative workforce practices or technologies.

5. Innovative workforce practices and technologies are implemented across the organization, and progress is tracked against the plan.

6. Problems in adopting innovative workforce practices and technologies are noted and corrective actions are taken.

Activity 8   **Data on the activities for continuous workforce innovation are collected and maintained.**

1. Information about the initiation, status, and implementation of innovative workforce practices and technologies is collected and maintained.

2. Information about the effectiveness of continuous workforce innovations is collected, analyzed, and reported.

3. Results of these analyses are used to improve the selection and implementation of innovative workforce practices and technologies.

Measurement and Analysis

Measurement 1   **Measurements are made and used to determine the status of activities for continuous workforce innovation.**

**Measurement 1
(continued)**

Examples of status measurements for continuous workforce innovation include:

- the number of workforce improvement proposals submitted,
- the number of improvement proposals implemented for each workforce area,
- the response time for handling workforce improvement proposals,
- the percentage of workforce improvement proposals accepted,
- the number of innovative workforce practices and technologies evaluated,
- the number of workforce innovations evaluated in each area of workforce activities,
- the number of workforce innovations evaluated in trial implementations, and
- the number of workforce innovations implemented broadly across the organization.

Measurement 2   **Measurements are made and used to determine the value of activities for continuous workforce innovation.**

Examples of measurements to determine the value of innovative workforce practices and technologies include:

- the impact of improvements in an individual's or team's workforce activities on their personal, team, or unit's performance;
- the impact of each workforce innovation on improving the efficiency of workforce activities;
- the impact of each workforce innovation on increasing the organization's capability in one or more of its core competencies;
- the impact of each workforce innovation on aligning performance;
- the effect of implementing each workforce improvement compared to its defined goals; and
- the effect of workforce innovations on team, unit, or organizational performance.

Verifying Implementation

Verification 1

A responsible individual(s) verifies that the activities for continuous workforce innovation are conducted according to plan and the organization's documented policies.

These reviews verify that:

1. The activities for continuous workforce innovation comply with the organization's policies and stated values.

2. Noncompliance items are handled appropriately.

3. All actions related to the activities for continuous workforce innovation are periodically reviewed to ensure that they conform to all relevant laws and regulations.

Verification 2

The organization's effectiveness in implementing activities for continuous workforce innovation is periodically reviewed by executive management.

These reviews verify the:

1. Appropriateness of the activities for continuous workforce innovation.

2. Progress in performing the activities for continuous workforce innovation.

3. Results from reviews of the activities for continuous workforce innovation against the organization's stated values and appropriate policies.

4. Status of resolution for noncompliance issues.

People
Capability Maturity Model

Appendices

Appendix A: References

[Basili83]   Basili, V.R. & Hutchens, D.H. "An empirical study of a syntactic complexity family." *IEEE Transactions on Software Engineering 9*, 6 (1983): 664-672.

[Bate94]   Bate, R., et al. *A Systems Engineering Capability Maturity Model, Version 1.0* (CMU/SEI-94-HB-4, ADA293345). Pittsburgh, PA: Software Engineering Institute, Carnegie Mellon University, 1994.

[Billings94]   Billings, C.; Clifton, J.; Kolkhorst, B.; Lee, E.; & Wingert, W.B. "Journey to a Mature Software Process." *IBM Systems Journal 33*, 1 (1994): 46-61.

[Boehm81]   Boehm, B. *Software Engineering Economics.* Englewood Cliffs, NJ: Prentice-Hall, 1981.

[Boehm88]   Boehm, B. "A Spiral Model of Software Development and Enhancement." *IEEE Computer 21*, 5 (1988): 61-72.

[Brooks87]   Brooks, F.P., Jr. "No silver bullet; essence and accidents of software engineering." *IEEE Computer 20*, 4 (April 1987): 10-19.

[Commerce95]   *1995 Award Criteria, The Malcolm Baldrige National Quality Award.* Gaithersburg, MD: National Institute of Standards and Technology, U.S. Dept of Commerce.

[Crosby79]   Crosby, P.B. *Quality is Free: The Art of Making Quality Certain.* New York: Penguin, 1979.

[Curtis81]   Curtis, B. "Substantiating Programmer Variability." *Proceedings of the IEEE 69*, 7 (1981): 846.

[Curtis88]   Curtis, B.; Krasner, H.; & Iscoe, N. "A Field Study of the Software Design Process for Large Systems." *Communications of the ACM 31*, 11 (1988): 1268-1287.

[Curtis90]   Curtis, B. "Managing the Real Leverage in Software Productivity and Quality." *American Programmer 4* (August 1990): 4-14.

[Deming86]   Deming, W.E. *Out of Crisis.* Cambridge: MIT-CAES, 1986.

[Dion93]   Dion, R. "Process Improvement and the Corporate Balance Sheet." *IEEE Software 10,* 4 (1993): 28-35.

[Fowler90]   Fowler, P. & Rifkin, S. *Software Engineering Process Group Guide* (CMU/SEI-90-TR-24, ADA235784). Pittsburgh, PA: Software Engineering Institute, Carnegie Mellon University, 1990.

[Goldenson95]   Goldenson, D. R. & Herbsleb, J. D. "What Happens After the Appraisal? A Survey of Process Improvement Efforts." *Proceedings of SEPG'95.* Boston, MA, 1995.

[Grady92]   Grady, R.B. *Practical Software Metrics For Project Management and Process Improvement.* Englewood Cliffs, NJ: Prentice Hall, 1992.

[Hansen89]   Hansen, G. S. & Wernerfelt, B. "Determinants of Firm Performance: Relative Importance of Economic and Organizational Factors." *Strategic Journal of Management 10* (1989): 399-411.

[Herbsleb94]   Herbsleb, J. et al. *Benefits of CMM-Based Software Process Improvement: Initial Results* (CMU/SEI-94-TR-13, AD-A283848). Pittsburgh, PA: Software Engineering Institute, Carnegie Mellon University, 1994.

[Humphrey87]   Humphrey, W. & Sweet, W. *A Method for Assessing the Software Engineering Capability of Contractors* (CMU/SEI-87-TR-23, ADA187230). Pittsburgh, PA: Software Engineering Institute, Carnegie Mellon University, 1987.

[Humphrey88]   Humphrey, W.S. "Characterizing the Software Process," *IEEE Software 5,* 2 (1988): 73-79.

[Humphrey89]   Humphrey, W.S. *Managing the Software Process.* Reading, MA: Addison-Wesley, 1989.

[Humphrey91]   Humphrey, W.S.; Snyder, T.R.; & Willis, R.R. "Software Process Improvement at Hughes Aircraft." *IEEE Software 8*, 4 (1991): 11-23.

[Humphrey95a]   Humphrey, W.S. *A Discipline for Software Engineering.* New York: Addison-Wesley Publishing Company, 1995.

[Humphrey95b]   Humphrey, W.S. "Why Should You Use a Personal Software Process." *ACM SIGSOFT Software Engineering Notes, 20,* 3(1995): 33-36.

[IEEE91]   ANSI/IEEE Std 610.12-1990. "IEEE Standard Glossary of Software Engineering Terminology." February 1991.

[Johnson94a]   Johnson, A. "Software Process Improvement Experience in the DP/MIS Function." 323-330. *Proceedings of the 16th International Conference on Software Engineering.* IEEE Computer Society Press, 1994.

[Johnson94b]   Johnson, J. "How We Climbed to Maturity Level Two." *Application Development Trends 1,* 4 (April 1994): 20-23.

[Juran89]   Juran, J.M. *Juran on Leadership for Quality.* New York: Free Press, 1989.

[Katzenbach93] Katzenbach, J.R. & Smith, D.K. *The Wisdom of Teams.* Boston: Harvard Business School Press, 1993.

[Kravetz88]   Kravetz, D. *The Human Resources Revolution.* San Francisco, CA: Jossey-Bass, 1988.

[Labor93]   U.S. Dept. of Labor, Office of the American Workplace. *High Performance Work Practices and Firm Performance.* Washington, D.C.: U.S. Dept. of Labor, 1993.

[Lipke92]   Lipke, W.H. & Butler, K.L. "Software Process Improvement: A Success Story." *Crosstalk: The Journal of Defense Software Engineering,* 38 (November 1992): 29-31.

[Masters95]   Masters, S. & Bothwell, C. *CMM Appraisal Framework, Version 1.0* (CMU/SEI-95-TR-001). Pittsburgh, PA: Software Engineering Institute, Carnegie Mellon University, 1995.

[Mavrinac95]   Mavrinac, S. C.; Jones, N. R.; & Meyer, M. W. *The Financial and Non-Financial Returns to Innovative Workplace Practices: A Critical Review.* Cambridge, MA: Harvard Graduate School of Business Administration, 1995.

[Mohrman95]   Mohrman, S. A.; Cohen, S. G.; & Mohrman, A. M., Jr. *Designing Team-Based Organizations.* San Francisco: Jossey-Bass, 1995.

[Nidiffer95]   Nidiffer, K. E. "How Grumman Data Reached Maturity Level 3." *Application Development Trends* 2, 3 (March 1995): 23-27.

[Paulk93a]   Paulk, M.C.; Curtis, B.; Chrissis, M.B.; & Weber, C. V. *Capability Maturity Model for Software, Version 1.1* (CMU/SEI-93-TR-24, ADA263403). Pittsburgh, PA: Software Engineering Institute, Carnegie Mellon University, 1993.

[Paulk93b]   Paulk, M.C.; Weber, C.V.; Garcia, S.; Chrissis, M.B.; & Bush, M. *Key Practices of the Capability Maturity Model, Version 1.1* (CMU/SEI-93-TR-25, ADA263432). Pittsburgh, PA: Software Engineering Institute, Carnegie Mellon University, 1993.

[Paulk95]   Paulk, M.C.; Weber, C.V.; Curtis, B.; & Chrissis, M.B. *The Capability Maturity Model for Software: Guidelines for Improving the Software Process.* Reading, MA: Addison-Wesley, 1995.

[Plunkett91]   Plunkett, L.C. & Fournier, R. *Participative Management: Implementing Empowerment.* New York: Wiley, 1991.

[Radice85]   Radice, R.A.; Harding, J.T.; Munnis, P.E.; & Phillips, R.W. "A Programming Process Study." *IBM Systems Journal* 24, 2 (1985): 79-90.

[Sackman68]   Sackman, H.; Ericsson, W.J.; & Grant, E.E. "Exploratory experimental studies comparing online and offline performance." *Communications of the ACM 11,* 1 (1968): 3-11.

[Selfridge94]   Selfridge, W. "PI at Rockwell - Experiences, SEPG Process, PAL, Recognition of ROI." *Proceedings of the 6th SEPG National Meeting*. Pittsburgh, PA: Software Engineering Institute, Carnegie Mellon University, 1994.

[Spencer93]   Spencer, L.M. & Spencer, S.M. *Competence at Work: Models for Superior Performance.* New York: John Wiley, 1993.

[Sudlow94]   Sudlow, B. "Moving from Chaos to SEI Level 2." *Software Development 2*, 12 (1994): 36-40.

[Valett89]   Valett, J.D. & McGarry, F.E. "A Summary of Software Measurement Experiences in the Software Engineering Laboratory." *Journal of Systems and Software 9*, 2 (1989): 137-148.

[Wellins91]   Wellins, R.S.; Byham, W.C.; & Wilson, J.M. *Empowered Teams: Creating Self-Directed Work Groups that Improve Quality, Productivity, and Participation.* San Francisco: Jossey-Bass, 1991.

[Wohlwend93]   Wohlwend, H. & Rosenbaum, S. "Software Improvements in an International Company," 212-220. Proceedings *of the 15th International Conference on Software Engineering*. Los Alamitos, CA: IEEE Computer Society Press, 1993.

Appendix B: Glossary of Terms

ADA – Americans with Disabilities Act

ability to perform – One of five common features. The preconditions that must exist in the unit or organization to implement workforce practices competently. Ability to Perform typically involves resources, organization structures, and training. (See also *common features*.)

action item – (1) A unit in a list that has been assigned to an individual or group for disposition. (2) An action proposal that has been accepted.

action plan – A plan, derived from the recommendations of an assessment, that identifies the specific actions that will be taken to improve the process and outlines the plans for implementing those actions. Sometimes referred to as an improvement plan or software process improvement plan.

activities performed – One of five common features. A description of the roles and procedures necessary to implement a key process area. Activities Performed typically involves establishing plans and procedures, performing the work, tracking it, and taking corrective action as necessary. (See also *common features*.)

activity – A key practice of the Activities Performed common feature. Any step taken or function performed, both mental and physical, toward achieving some objective. Activities include all the work that the members of the workforce do to perform the tasks of the unit and organization. (See *task* for contrast.)

alternative practice – A practice that is different than those described in the P-CMM that may satisfactorily accomplish the goals of a key process area.

appraisal – A diagnostic performed by a trained team to evaluate aspects of an organization's processes, e.g., CMM – Based Appraisal for Internal Process Improvement (CBA IPI), P-CMM Appraisal Method (PAM).

assessment – An appraisal by a trained team of professionals to determine the state of an organization's current processes, to determine the high-priority process-related issues facing an organization, and to obtain

organizational support for process improvement, e.g., Software Process Assessment (SPA), CMM-Based Appraisal for Internal Process Improvement (CBA IPI), or P-CMM Appraisal Method (PAM). (See also *software process assessment* .)

audit – An independent examination of a work product or set of work products to assess compliance with specifications, standards, contractual agreements, or other criteria [IEEE91]. In particular, auditing ensures that data are consistent, complete, maintained, and used appropriately.

baseline – A specification or product that has been formally reviewed and agreed upon, that thereafter serves as the basis for further development, and that can be changed only through formal change control procedures [IEEE91].

benchmark – A standard against which measurements or comparisons can be made [IEEE91].

benchmarking – The practice of setting operating targets for a particular process by selecting top performance levels. In a broader sense, benchmarking involves searching and identifying new ideas and best practices for improvement of processes, products, and services.

benefits - Payments made or entitlements available over and above salary in accordance with a wage or employment agreement between an organization and an individual.

business process – A group of logically related tasks that take an input(s), add value to it, and use the resources of the organization to provide defined results or to produce defined products in support of the organization's objectives.

CAF – Acronym for *CMM Appraisal Framework* [Masters95].

CAF-compliant appraisal method – An appraisal method that conforms to the requirements defined in the CAF [Masters95].

Capability Maturity Model^{SM} for Software (CMM^{SM}) – A description of the stages through which software organizations evolve as they define,

---

[SM] Capability Maturity Model and CMM are service marks of Carnegie Mellon University.

implement, measure, control, and improve their software processes. This model provides a guide for selecting process improvement strategies by facilitating the determination of current process capabilities and the identification of the issues most critical to software quality and process improvement [Paulk95].

capability of an individual work process – The range of outcomes that occur when an individual work process is performed repeatedly. These outcomes can include the productivity of the performance or the quality of the product or service produced.

career counseling – Advice or guidance from an experienced person with regard to a chosen profession or occupation, or with regard to personal growth in the organization.

career development – Actions which provide opportunities for staff members to develop new skills that enhance their ability to achieve career objectives. (See also *maturity level: Defined.*)

CBA – Acronym for *CMM-Based Appraisals*.

CBA IPI – Acronym for *CMM-Based Appraisal for Internal Process Improvement*.

CMM SM – Acronym for *Capability Maturity Model*SM.

CMM Appraisal Framework (CAF) – A framework for planning, conducting, and completing CMM-based appraisals.

CMM-based appraisal (CBA) – An appraisal conducted using a CMM-based appraisal method.

CMM-Based Appraisal for Internal Process Improvement (CBA IPI) – An assessment that is based on the CMM, compliant with the CAF, released and trained by the SEI, and used to determine the current state of an organization's software development process in order to further the organization's own internal software process improvement program.

coaching – The provision of expert assistance to enhance the performance of individuals or teams. (See also *maturity level: Optimizing.*)

commitment – A pact that is freely assumed, visible, and expected to be kept by all parties.

commitment to perform – One of five common features. The actions that an organization must take to ensure that a process is established and will endure. Commitment to Perform typically involves establishing organizational policies and executive management sponsorship. (See also *common features*.)

common features – The subdivision categories of key process areas. The common features are attributes that indicate whether the implementation and institutionalization of a key process area is effective, repeatable, and lasting. The P-CMM common features are the following:

- ❑ **commitment to perform** – The actions that an organization must take to ensure that a process is established and will endure. Commitment to Perform typically involves establishing organizational policies and executive management sponsorship.
- ❑ **ability to perform** – The preconditions that must exist in a unit or organization to implement workforce practices competently. Ability to Perform typically involves resources, organizational structures, and training.
- ❑ **activities performed** – A description of the roles and procedures necessary to implement a key process area. Activities Performed typically involve establishing plans and procedures, performing the work, tracking it, and taking corrective actions as necessary.
- ❑ **measurement and analysis** – A description of the need to measure the process and analyze the measurements. Measurement and Analysis typically includes examples of the measurements that could be taken to determine the status and effectiveness of the Activities Performed.
- ❑ **verifying implementation** – The steps to ensure that the activities are performed in compliance with the process that has been established. Verification typically encompasses reviews and audits by management and software quality assurance.

communication – The processes that establish a social environment that supports effective interaction and ensures that the workforce has the skills

to share information and coordinate their activities efficiently. (See also *maturity level: Repeatable.*)

compensation – The pay and guaranteed benefits given to an individual for services performed. (See also *maturity level: Repeatable.*)

compensation strategy – An organization's philosophy and method for compensating staff members.

competency – An underlying characteristic of an individual that is causally related to effective and/or superior performance, as determined by measurable, objective criteria, in a job or situation [adapted from Spencer93, p. 9].

competency-based practices – (1) Workforce practices which are focused on developing the capability of the workforce in relation to the organization's core competencies. (2) Actions that ensure that an organization's workforce practices are based in part on developing the knowledge and skills of its workforce in the organization's core competencies. (See also *maturity level: Defined.*)

competency development – Actions that constantly enhance the capability of the staff to perform their assigned tasks and responsibilities. (See also *maturity level: Defined.*)

continuous workforce innovation – The identification and evaluation of improved workforce practices and technologies and the implementation of the most promising ones throughout the organization. (See also *maturity level: Optimizing.*)

core competency - The knowledge and skills needed within the workforce to perform an important business function of the organization. A core competency can be stated at a very abstract level, such as a need for a core competency in software engineering. Core competencies can also be decomposed to more granular capabilities, such as core competencies in designing avionics software, testing switching system software, or writing user manuals and training for reservations systems. A core competency can be decomposed into the specific knowledge and skills required to perform the business processes underlying the business function for which the competency is maintained.

corrective actions – Acts or deeds used to remedy a situation, remove an error, or adjust a condition.

critical skills – Skills that, if not performed effectively, could jeopardize the successful performance of a critical task.

critical task – A task that could jeopardize the successful performance of an assignment, if it is not performed well according to task-related criteria.

cross-functional team– a team composed of members who represent different disciplines or functional units within the organization.

defined level – (See *maturity level.*)

deviation – A noticeable or marked departure from the appropriate norm, plan, standard, procedure, or variable being reviewed.

documented procedure – (See *procedure.*)

EEO – Equal Employment Opportunity Act.

effective process – A process that can be characterized as practiced, documented, enforced, trained, measured, and able to improve. (See also *well-defined process.*)

empowerment – Giving enabled employees decision-making authority and responsibility over the actions required to accomplish their assignments.

enabled – Having the knowledge, skills, and authority needed to effectively accomplish a job (usually refers to an individual or team).

event-driven review/activity – A review or activity that is performed based on the occurrence of an event within the project (e.g., a formal review or the completion of a life-cycle stage). (See *periodic review/activity* for contrast.)

executive manager – A management role at a high enough level in an organization that the primary focus is the long-term vitality of the organization, rather than short-term project and contractual concerns and pressures. An executive manager provides and protects resources for long-term improvement of the software process (e.g., a software engineering process group) or the workforce.

Executive management, as used in the P-CMM, can denote any manager who satisfies the above description, up to and including the head of the whole organization. As used in the key practices, the term "executive management" should be interpreted in the context of the key process area and the projects and organization under consideration. The intent is to include specifically those executive managers who are needed to fulfill the leadership and oversight roles essential to achieving the goals of the key process area.

findings – The conclusions of an assessment, evaluation, audit, or review that identify the most important issues, problems, or opportunities within the area of investigation.

FLSA – Federal Labor Standards Act.

function – A set of related actions, undertaken by individuals or tools that are specifically assigned or fitted for their roles, to accomplish a set purpose or end.

gain sharing – Additional compensation paid to employees based on improvements in the performance results of an organization. (See also *profit sharing.*)

goal – A summary of the key practices of a key process area that can be used to determine whether a key process area is effectively implemented. The goals signify the scope, boundaries, and intent of each key process area.

graduated career opportunities – Graduated career opportunities include not only promotion opportunities upwards within the organization, but also career broadening or lateral assignments to gain experience or increase the individual's capabilities in the organization's core competencies. Such opportunities may be in other units or in assignments to other organizations in the company. An organization may have any number or combination of graduated career opportunities.

grievance – Circumstance regarded as just cause for protest; a complaint based on such circumstance.

group – A collection of individuals who have responsibility for a set of tasks or activities. Groups are most frequently formed as a cluster of individuals

organized into a structure that is convenient for managing [Plunkett91]. Although group members have functional relationships with each other, these relationships do not necessarily involve strong work interdependencies. A group is composed of more than an individual, but if it is not cross-functional, it constitutes nothing larger than the lowest level unit. Group composition could vary from several part-time individuals assigned from different departments, to individuals in the same unit assigned full time. Teams are groups that have undergone team-building processes.

guaranteed benefits – Promised or secured payments or entitlements made available in accord with a wage or employment agreement.

human resources group – The collection of individuals (both managers and staff) comprising the unit(s) within an organization that focuses on devising practical, effective ways to manage employer/employee relations. Their responsibility is directed toward, but not limited to, the recruiting, selection, hiring and training of employees and the formulation of policies, procedures, and relations with employees or their representatives.

Generally, the concerns of the human resources group encompass affirmative action/EEO, benefits, classification and compensation, employment, labor relations, staff services, and training and development. The scope of the responsibilities of the human resources group depends largely on the size and type of business of the organization.

IDEAL^{SM} approach – A life-cycle approach for process improvement. IDEAL stands for the five phases of the approach: initiating, diagnosing, establishing, acting, and leveraging.

individual – A person who performs one or more roles required to execute the business of the organization. (See also Section 5.4.1.)

individual work processes – the work processes used by an individual to perform his or her portion of a business process. Through Personal Competency Development, these individual work processes mature to become a "customized set of orderly, consistently practiced, and high-quality personal practices" [Humphrey95a].

SM IDEAL is a service mark of Carnegie Mellon University.

infrastructure – the system of communications and resources which form the basis for effective organizational action.

initial level – (See *maturity level*.)

institutionalization – The building of infrastructure and corporate culture that support methods, practices, and procedures so that they are the ongoing way of doing business, even after those who originally defined them are gone.

institutionalization common feature – One of the four common features (Commitment to Perform, Ability to Perform, Measurement and Analysis, and Verifying Implementation) that support the institutionalization of a process in an organization.

job performance – In general, activity performed for compensation which fulfills a requirement or obligation to an employer. More specifically, the extent to which an individual or group meets specified criteria in performing those activities.

key practices – The infrastructures and activities that contribute most to the effective implementation and institutionalization of a key process area.

- ❑ Key practices (also top-level key practices) state the fundamental policies, procedures, and activities for the key process area.
- ❑ Subpractices (also subordinate key practices) describe what one would expect to find implemented for the top-level key practice

key process area – A cluster of related activities that, when performed collectively, achieve a set of goals considered important for establishing process capability. The key process areas have been defined to reside at a single maturity level. They are the areas identified by the SEI to be the principal building blocks to help determine the workforce capability of an organization and understand the improvements needed to advance to higher maturity levels. The Level 2 key process areas in the P-CMM are Work Environment, Communication, Staffing, Performance Management, Training, and Compensation. The Level 3 key process areas in the P-CMM are Knowledge and Skills Analysis, Workforce Planning, Competency Development, Career Development, Competency-Based Practices, and Participatory Culture. The Level 4 key process areas are Mentoring, Team

Building, Team-Based Practices, Organizational Competency Management and Organizational Performance Alignment. The Level 5 key process areas are Personal Competency Development, Coaching, and Continuous Workforce Innovation.

knowledge – The information and understanding that someone must have to perform a task successfully.

knowledge and skills analysis – The study of the information, understanding, and performance capabilities required for performing a particular business process.

knowledge and skills profile – A description of the knowledge and skills required to perform an activity, process, or position.

KPA – Acronym for *key process area.*

managed level – (See *maturity level.*)

manager – A role that encompasses providing technical and administrative direction and control to individuals performing tasks or activities within the manager's area of responsibility. The traditional functions of a manager include planning, resourcing, organizing, directing, and controlling work within an area of responsibility.

maturity level – A well-defined evolutionary plateau toward achieving a mature software process. The five maturity levels in the People Capability Maturity Model are the following:

❑ **initial** – The organization typically does not provide a consistent environment for managing its people. The management of the organization's talent is very inconsistent, and there is no basis for improving it.

❑ **repeatable** – Basic workforce practices are established for staffing, performance management, training, and compensation. A supportive work environment, grounded in appropriate values and supportive of effective interpersonal communication, is established. Basic discipline is in place in the organization's workforce activities.

❑ **defined** – The organization identifies its core competencies and plans, and tailors and executes its defined workforce practices to

enhance its capabilities in those core competencies required by its business environment. The organization tailors its workforce activities for developing and rewarding these core competencies. Career development activities are undertaken and a participatory culture is nurtured.

❑ **managed** – The organization focuses on building competency-based teams and establishing a quantitative understanding of trends in the development of knowledge and skills, and in the alignment of performance across different levels of the organization. Mentoring is used apply the experience of individuals to provide personal support and guidance to other individuals or groups. The organization undertakes formal team building to integrate the knowledge and skills required to accomplish its business functions. Organizational growth in each of the organization's areas of primary competency is quantitatively managed.

❑ **optimizing** – The organization and individuals within the organization are addressing implementing continuous improvements in their capabilities. Continuous improvement of both personal and organizational competence is achieved. Continuous improvement of the organization's methods for developing its competencies and performance is enabled through both quantitative feedback and the adoption of innovative practices and technologies.

measure – A unit of measurement (such as source lines of code or document pages of design).

measurement – The dimension, capacity, quantity, or amount of something (e.g., 300 source lines of code or 7 document pages of design).

measurement and analysis – One of five common features. A description of the need to measure the process and analyze the measurements. Measurement and Analysis typically includes examples of the measurements that could be taken to determine the status and effectiveness of the Activities Performed. (See also *common features.*)

mentoring – The process of using experienced members of the organization to provide personal support and guidance to less experienced members of the staff. (See also *maturity level: Managed.*)

method – A reasonably complete set of rules and criteria that establish a precise and repeatable way of performing a task and arriving at a desired result.

NLRB – National Labor Relations Board.

ombudsman – An individual assigned responsibility for investigating complaints and assisting in reaching settlement of the complaints received.

optimizing level – (See *maturity level.*)

organization – A unit within a company or other entity (e.g., government agency or branch of service).

organizational competency management – The process of determining the effectiveness of the organization's competency development practices in achieving specific competency growth goals and using the results to guide the application and improvement of competency development activities. (See also *maturity level: Managed.*)

organizational performance alignment – The process of enhancing the alignment of performance results at the individual, team, unit, and organizational levels with the appropriate goals and quantitatively assessing the effectiveness of workforce practices on achieving alignment. (See also *maturity level: Managed.*)

organizational roles – (See *role.*)

organizational structure – The formal relationships between the entities within an organization. Entities within an organization may include the following:

- ❑ organization (See *organization.*)
- ❑ unit (See *unit.*)
- ❑ group (See *group.*)
- ❑ team (See *team.*)
- ❑ software engineering process group (SEPG) (See *software engineering process group.*)
- ❑ human resources group (See *human resources group.*)
- ❑ training group. (See *training group.*)

orientation - An overview or introduction to a topic for those individuals performing in the topic area or for those responsible for performance or interaction with individuals performing in the topic area. For example, when transitioning an individual into a new position, orientation to the organization and to the job may be provided. Orientation typically involves providing information to build knowledge, but does not necessarily involve developing a performable skill. (See *train* for contrast.)

OSHA – Occupational Safety and Health Act.

PAIS – Process Appraisal Information System.

participatory culture – A culture in which decisions are shifted down to the lowest practical level in the organization. In general, those affected by a decision have a role in making it, although there is no implicit promise that everyone affected will be involved in every decision. Some of the conditions that should be established to support a participatory culture include improving the flow of information within the organization, incorporating the knowledge of staff members into decision-making processes, and involving them in making and approving their commitments. (See also *maturity level: Defined.*)

pay – Any guaranteed fixed rate of salary or hourly wages provided to individuals, plus any variable amounts that are provided based on an existing agreement between the organization and the individual.

performance alignment – The congruence of performance objectives and the consistency of performance results across the individual, team, unit, and organizational levels.

performance feedback methods – The workforce practices that allow those responsible for providing performance feedback to (1) have ongoing discussions about performance issues with those they are assigned to review, (2) provide periodic formal performance feedback to those they are assigned to review, (3) support mutual investigation of ways to enhance performance, and (4) handle any performance issues that may arise. Examples of performance feedback methods include the following:

❑ performance appraisal interview
❑ peer group evaluation

❑ 360⁰ review

❑ performance panel review

❑ other appropriate mechanisms

performance improvement plan – A document describing the detailed plans for correcting identified performance problem(s).

performance management – The process of establishing objective criteria against which unit and individual performance can be measured, providing performance feedback, and enhancing performance continuously. (See also *maturity level: Repeatable.*)

periodic review/activity – A review or activity that occurs at specified regular time intervals. (See *event-driven review/activity* for contrast.)

personal competency development – The development of goals and plans for personal activities, establishment and use of defined processes in individual work activities, measurement and analysis of the effectiveness of personal processes, and implementation of effective improvements in the individual's work processes. (See also *maturity level: Optimizing.*)

policy – A guiding principle, typically established by senior management, which is adopted by an organization or project to influence and determine decisions.

position – A post of employment, an assignment of duty, a job.

procedure – A written description of a course of action to be taken to perform a given task [IEEE91].

process – A sequence of steps performed for a given purpose; for example, the software development process [IEEE91].

process capability – The range of expected results that can be achieved by following a process; the ability of a process to meet its goals and requirements. (See *process performance* for contrast.) Note that process capability may differ from actual performance due to special causes.

process maturity – The extent to which a specific process is explicitly defined, managed, measured, controlled, and effective. Maturity implies a potential for growth in capability and indicates both the richness of an

organization's process and the consistency with which the process is applied throughout the organization.

process performance – A measure of the actual results achieved by following a process. (See *process capability* for contrast.)

process tailoring – The activity of creating a process description by elaborating, adapting, and/or completing the details of process elements or other incomplete specifications of a process. Specific business needs for a project will usually be addressed during process tailoring.

profit sharing – Additional compensation paid to employees based on the organization's profits. (See also *gain sharing.*)

quality – (1) The degree to which a system, component, or process meets specified requirements. (2) The degree to which a system, component, or process meets customer or user needs or expectations [IEEE-STD-610].

quantitative control – Use of appropriate quantitative or statistically-based techniques to analyze a process, identify special causes of variations in the performance of the process, and bring the performance of the process within well-defined limits.

reasonable workforce practice – A practice that is effective in building workforce capability. The "reasonableness" of the practice is determined by professional judgment. (See also *workforce practices.*)

recognition – Various forms of special acknowledgments made to an individual or group for work performed.

recruiting – Identifying sources of new job candidates and attracting them to apply for employment or for an open position.

repeatable level – (See *maturity level.*)

required training – Training designated by an organization to be required to perform a specific role.

reward – Variable amounts of money or other considerations provided to individuals or groups at random times without any prior agreement as to conditions of receipt. Rewards are made to reinforce the skills and

behaviors that the organization values. Rewards can be made on a periodic (e.g., annual performance awards) or occasional (e.g., project completion) basis.

reward strategy – The organization's basis for providing considerations, such as money, outside the compensation system for a special service or accomplishment of significant value to the organization.

role – A unit of defined responsibilities that may be assumed by one or more individuals.

selection – The act of choosing from among several candidates the individual who will be offered an open position.

SEPG – Acronym for *software engineering process group.*

skills – The performance abilities that must be developed to perform a task or activity successfully. Skills may involve behaviors to directly accomplish the task or to support or coordinate with others to help accomplish tasks.

software engineering process group (SEPG) – A group of specialists who facilitate the definition, maintenance, and improvement of the software process used by the organization. When integrating workforce process improvement activities with ongoing software process improvement activities of an organization, the SEPG may be augmented with members from the human resources group.

software process assessment – An appraisal by a trained team of software professionals to determine the state of an organization's current software process, to determine the high-priority software process-related issues facing an organization, and to obtain the organizational support for software process improvement.

Software Process Improvement Network (SPIN) – A number of regional organizations throughout the world. Each of the regional SPIN organizations is a collection of software professionals interested in software process improvement. These groups meet on a regular basis to share experiences, listen to presentations of interest, and work toward solutions to common problems.

SPIN – Acronym for *Software Process Improvement Network.*

staffing – The process of establishing a formal process by which talent is recruited, selected, and transitioned into assignments in the organization. (See also *maturity level: Repeatable.*)

stated values – A set of documented principles that are intended to guide decisions that the organization makes about how it conducts its business, how it treats its workforce, how it interacts with its environment, and other important issues.

subpractice – Practices listed beneath key practices in the P-CMM that describe different activities that might be implemented in establishing the key practice. Performance of the subpractices can be used to determine whether or not the key practices are implemented satisfactorily.

succession plans – Plans developed to ensure that qualified individuals with the required knowledge and skills are always available to perform the responsibilities of key positions within the organization.

system – A collection of components organized to accomplish a specific function or set of functions [IEEE91].

tailor – To modify a process, standard, or procedure to better match process or product requirements.

task – (1) A sequence of instructions or activities treated as a basic unit of work [adapted from IEEE91]. (2) A well-defined unit of work in the software process that provides management with a visible checkpoint of the project's status. Tasks have readiness criteria (preconditions) and completion criteria (postconditions). (See *activity* for contrast.)

team – A group of people who work closely together to achieve shared objectives, work together on tasks that are highly interdependent, and may exercise a level of autonomy in managing their activities in pursuit of those objectives. This small number of people (often less than 10) with complementary skills are committed to a common purpose, performance goals, and work processes for which they hold themselves mutually accountable [Katzenbach93, pg. 45].

A collection of people, often drawn from diverse but related groups, assigned to perform a well-defined function for an organization or a project.

Team members may participate on the team part time and have other primary responsibilities.

team-based practices – The process of tailoring the organization's workforce practices to support the development, motivation, and functioning of teams. (See also *maturity level: Managed.*)

team building – The process of capitalizing on opportunities, where appropriate, to create teams that maximize the integration of diverse knowledge and skills to perform business functions. (See also *maturity level: Managed.*)

technology – The application of science and/or engineering in accomplishing some particular result.

train – To make proficient with specialized instruction and practice. (See *orientation* for contrast.)

training – Activities undertaken to ensure that all staff members have the skills required to perform their assignments. (See also *maturity level: Repeatable.*)

training group – The collection of individuals (both managers and staff) who are responsible for coordinating and arranging the training activities for an organization. This group may prepare and conduct training courses or may coordinate use of other, possibly external, training vehicles.

training program – The set of training activities that focus on addressing an organization's training needs. It includes an analysis of training needs, development of the organization's training plan, development of training and training materials, conduct of training, evaluation of training, and maintenance of training records.

training waiver – A written approval exempting an individual from training that is required for a specific role. The exemption is granted because it has been objectively determined that the individual already possesses the needed knowledge and skills to perform the role.

unit – A single defined organizational component (e.g., a department, section, or project) within an organization. The term "unit" is used in the

P-CMM to refer to any organizational component that is larger than a team, but smaller than the organization.

values – Ideas held by individuals about ethical behavior or appropriate behavior, what is right or wrong, desirable or undesirable.

verifying implementation – (See *common features*.)

waiver – A document that indicates intentional, voluntary relinquishment of a right or claim or calls out an exception to compliance with a documented policy, procedure, or competency requirement. (See also *training waiver*.)

well-defined process – A process that includes readiness criteria, inputs, standards, and procedures for performing the work, verification mechanisms (such as peer reviews), outputs, and completion criteria. (See also *effective process*.)

work environment – The process of establishing and maintaining physical working conditions that allow individuals to perform their tasks efficiently and to concentrate on their tasks without unnecessary or inappropriate distractions. (See also *maturity level: Repeatable*.)

workforce activities – Activities whose purpose is to implement a human resource or other people-related practice. Workforce activities should comply with guidelines contained in the workforce practice they implement. Therefore, workforce activities are what responsible individuals actually do when performing a workforce practice.

workforce capability – The level of knowledge, skills, motivation, and preparedness of an organization's workforce, and the ability of the workforce to perform the organization's business functions.

workforce improvement activities – Activities that improve the level of knowledge, skills, motivation, and coordination of an organization's workforce.

workforce improvement proposal – A documented suggestion for change to a process or process-related item that will improve workforce capability and performance.

workforce planning – The process of coordinating workforce activities with current and future business needs at both the organizational and unit levels. Workforce planning involves developing a strategic workforce plan that sets organization-wide objectives for competency development and workforce activities, and developing near-term plans to guide the workforce activities of each unit. Specific workforce activities are planned to fulfill immediate workforce needs and long-term development requirements established by the business. (See also *maturity level: Defined.*)

workforce practices – Specific procedures and guidance for accomplishing a workforce or other people-related organizational policy within the organization. A workforce practice specifies documented procedures, guidelines, and content for performing workforce activities in any people-related area (e.g., compensation, performance management, team-building, coaching). Workforce practices are typically documented and maintained by the human resources function or another appropriate group.

Appendix C: Abridged Version of the P-CMM Key Practices

This appendix contains an abridged version of the P-CMM key practices, which provides a high-level overview of the primary activities within each key process area. It can be used to get a "quick look" at each key process area. It does not, however, provide the specific activities for these key practices nor does it cover all the key practices. It is intended for informational purposes, not for determining compliance to the key practices or planning process improvements.

This abridgment contains a short description of each key process area, its goals, and the key practice statements from the Activities Performed common feature of the key process area. These items are extracted verbatim from the detailed descriptions of each key process area.

There are a number of other key practices specified under the other common features (i.e., Commitment to Perform, Ability to Perform, Measurement and Analysis, and Verifying Implementation) that are not contained in this appendix. These other key practices must be in place to ensure that the key practices are implemented appropriately and effectively, are solidly established, will be maintained and not erode over time, and can be effectively applied to new work. To appropriately establish a key process area, the full set of key practices should be used.

Commitment to Perform typically involves establishing organizational policies and senior management sponsorship. Ability to Perform typically involves resources, organizational structures, and training. Measurement and Analysis typically includes examples of the measurements that could be taken to determine the status and effectiveness of the Activities Performed. Verifying Implementation typically encompasses reviews and audits by responsible individual(s) and executive management.

Figure A.1 depicts the key process areas within each maturity level.

Continuously improve
methods for developing
personal and
organizational
competence

Level 5—Optimizing

Continuous Workforce Innovation
Coaching
Personal Competency Development

Quantitatively manage
organizational growth
in workforce
capabilities and
establish
competency-
based teams

Level 4—Managed

Organizational Performance Alignment
Organizational Competency Management
Team-Based Practices
Team Building
Mentoring

Identify primary
competencies
and align
workforce
activities
with them

Level 3—Defined

Participatory Culture
Competency-Based Practices
Career Development
Competency Development
Workforce Planning
Knowledge and Skills Analysis

Instill basic
discipline
into
workforce
activities

Level 2—Repeatable

Compensation
Training
Performance Management
Staffing
Communication
Work Environment
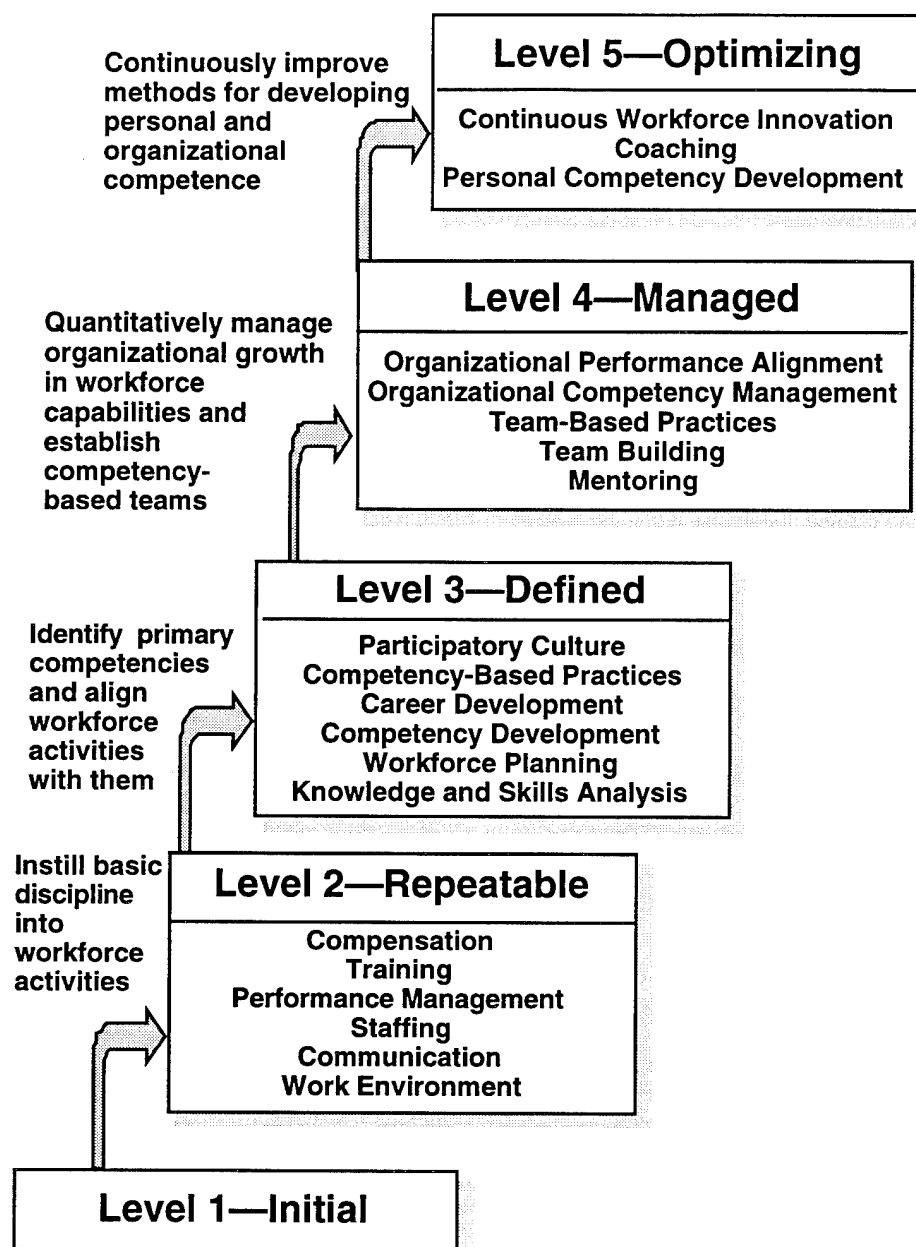
Level 1—Initial

Figure A.1   P-CMM Key Process Areas

Level 2: Work Environment

The purpose of Work Environment is to establish and maintain physical working conditions that allow individuals to perform their tasks efficiently and to concentrate on their tasks without unnecessary or inappropriate distractions.

Work Environment involves ensuring the work environment complies with all applicable laws and regulations, that improvements are made that will enhance performance, that impediments to performance are removed, and that distractions are minimized.

Establishing an effective work environment begins with ensuring that the work environment complies with all laws and regulations. Sufficient facilities and personal workspace are made available for individuals to perform their assigned responsibilities. Improvements to the effectiveness of the work environment are identified and prioritized. Within reasonable boundaries, improvements are made to the work environment. Environmental and physical impediments in the work environment are eliminated. Distractions in the work environment are identified and minimized.

The goals of Work Environment are:

1. An environment that supports the performance of business processes is established and maintained.

2. The resources needed by the workforce to perform their assignments are made available.

3. Distractions in the work environment are minimized.

The top-level activities performed for Work Environment are:

1. Laws and regulations governing the work environment are communicated to the workforce.

2. Violations of laws and regulations governing the work environment are raised to a responsible individual and are handled according to a documented procedure.

3. The resources needed to accomplish a unit's business processes are made available in a timely manner.

4. Individual workspaces provide an adequate personal environment for performing assigned work responsibilities.

5. Periodic improvements are made to the work environment that increase effectiveness in performing work.

6. Environmental factors that degrade or endanger the health of the workforce are identified and corrected.

7. Physical factors that degrade the effectiveness of the work environment are identified and corrected.

8. Sources of frequent interruption or distraction that degrade the effectiveness of the work environment are identified and minimized.

Level 2: Communication

The purpose of Communication is to establish a social environment that supports effective interaction and to ensure that the workforce has the skills to share information and coordinate their activities efficiently.

Communication involves establishing effective top-down and bottom-up communication channels within the organization, ensuring that all individuals have the necessary communications skills to perform their tasks and coordinate effectively, conducting meetings efficiently, and resolving problems.

Establishing effective communication begins with communicating the values, policies, and procedures of the organization to the workforce. Oral and written communication capabilities are improved through training. The interpersonal communication skills necessary to maintain effective working relationships are developed. Meetings are managed to ensure that time is used most effectively. Communication problems are handled through appropriate means. Individual opinions on working conditions are sought. Formal procedures are established for raising and resolving grievances.

The goals of Communication are:

1. A social environment that supports task performance and coordination among individuals and groups is established and maintained.

2. Information is shared across levels of the organization.

3. Individuals develop skills to share information and coordinate their activities.

4. Individuals are able to raise grievances and have them addressed by management.

The top-level activities performed for Communication are:

1. The people-related policies and practices of the organization are communicated to the workforce.

2. Management communicates information about organizational events and conditions to the workforce on a periodic and event-driven basis.

3. The communication skills needed to perform task assignments are developed.

4. The interpersonal communication skills necessary to establish and maintain effective working relationships are developed.

5. Interpersonal problems or conflicts that degrade the quality or effectiveness of working relationships are handled appropriately.

6. Individual's opinions on their working conditions are sought on a periodic and event-driven basis.

7. Individuals or groups can raise grievances according to a documented procedure.

8. Management tracks to closure activities related to the resolution of a grievance.

9. Meetings are conducted to make the most effective use of the time of those participating.

Level 2: Staffing

The purpose of Staffing is to establish a formal process by which talent is recruited, selected, and transitioned into assignments in the organization.

Recruiting involves identifying the knowledge and skill requirements for open positions, motivating all individuals to seek out qualified candidates, announcing the availability of positions to likely sources of candidates, and reviewing the effectiveness of recruiting efforts. Selection involves developing a list of qualified candidates, defining a selection strategy, identifying qualified candidates, thoroughly evaluating qualified candidates, and selecting the most qualified candidate. Transitioning involves attracting selected candidates, orienting them to the organization, and ensuring their successful transition into their new positions.

Recruiting activities begin when open positions are identified. Tasks to be performed by individuals filling these open positions and the characteristics of candidates who would be capable of performing the tasks are listed. These open positions are communicated to the unit's workforce so that they can aid in recruiting and screening qualified candidates. The openings are also posted internally and communicated to external sources that are likely sources of qualified candidates. A responsible individual(s) works with external sources to maximize the likelihood of identifying candidates. The status of recruiting activities are reviewed within each unit, and periodically by executive management. Lessons learned about recruiting approaches and sources are periodically assessed.

A list of qualified candidates is drawn from the results of recruiting efforts. A selection strategy is developed based on the characteristics of the position to be filled. A short list of the most qualified candidates is chosen for further consideration. The skills and experience of the candidates on the short list are thoroughly evaluated against position criteria through reference checks and other methods decided in advance. The rights and dignity of the candidates are respected throughout the selection process. All appropriate individuals in the unit participate in the selection process. Ultimately, the most qualified candidate is selected.

The organization coordinates its activities to attract selected candidates. Actions are taken to ensure that newly hired individuals transition successfully into their new positions. The results of the selection process are reviewed and success is measured on a periodic basis.

The goals of Staffing are:

1. The organization actively recruits for qualified talent.

2. The most qualified candidate is selected for each position.

3. Selected candidates are transitioned into their new positions.

4. Members of a unit are involved in its staffing activities.

The top-level activities performed for Staffing are:

1. Responsible individuals plan and coordinate the staffing activities of their units in accordance with documented policies and procedures.

2. Position openings within a unit are identified and analyzed.

3. Position openings within the organization are widely communicated.

4. External recruiting activities are planned and coordinated with unit requirements.

5. A selection process and appropriate selection criteria are defined for each open position.

6. Each unit, in conjunction with their human resources group, conducts a selection process for each position it intends to fill.

7. The position is offered to the most qualified candidate.

8. The organization coordinates to attract the selected candidate.

9. The selected candidate is transitioned into the new position.

10. All appropriate members of a unit are actively involved in its staffing process.

11. Workforce reduction and other outplacement activities are conducted in accordance with the organization's policies and procedures.

Level 2: Performance Management

The purpose of Performance Management is to establish objective criteria against which unit and individual performance can be measured, to provide performance feedback, and to enhance performance continuously.

Performance Management involves establishing objective unit and individual performance criteria, discussing performance regularly and identifying ways to enhance it, providing periodic performance feedback, identifying development needs, and systematically addressing performance problems or rewarding extraordinary performance.

The process of managing performance is initiated by collaboratively defining unit performance criteria that are consistent with the unit's business plan. These unit criteria establish the framework in which individual performance can be measured objectively. A performance plan is periodically created for each individual. Those responsible for performance feedback have ongoing discussions about performance issues with those they are assigned to review.

Performance feedback involves mutual investigation of ways to enhance performance. Performance results are periodically documented. The development needs of each individual are documented for further action and career options are discussed. When necessary, performance problems are documented and an improvement plan is developed and tracked.

Reward includes special recognition outside of the compensation system that recognize accomplishments of significant value to the organization. A reward strategy is developed that identifies the events or results that qualify for special recognition. The rewards program is communicated to the workforce. As rewards are made, public recognition is provided in order to reinforce those skills or behaviors the organization values.

The goals of Performance Management are:

1. Job performance is measured against objective criteria and documented.

2. Job performance is regularly discussed to identify actions that can improve it.

3. Development opportunities are discussed with each individual.

4. Performance problems are managed.

5. Outstanding performance is recognized.

The top-level activities performed for Performance Management are:

1. Objective performance criteria are established for each unit.

2. The unit's performance criteria are periodically reviewed to determine their appropriateness under changing business or organizational conditions and, if necessary, revised.

3. The unit's performance criteria are allocated appropriately to subunits, groups, or individuals within the unit.

4. Objective performance criteria are periodically documented for each individual.

5. Performance criteria for each individual are periodically reviewed and, if necessary, revised.

6. Those responsible for performance management activities maintain ongoing communication about job performance with those whose performance they evaluate.

7. Those responsible for performance management activities maintain an awareness of job performance of the individuals whose performance they evaluate against each individual's documented performance criteria.

8. Potential improvements in process, tools, or resources which could enhance an individual's performance in his or her current assignment are identified and actions taken to provide them.

9. A consistent method is defined and documented for providing formal feedback on individual or group performance on a periodic or event-driven basis.

10. Formal feedback on individual and/or group performance is provided on a periodic and event-driven basis.

11. If performance problems occur, they are discussed with the appropriate individual(s) or group.

12. A documented performance improvement plan is developed for resolving performance problems.

13. Progress against a documented performance improvement plan is periodically evaluated, discussed, and documented.

14. A development discussion is held with each individual on a periodic basis.

15. Recognition and rewards are made on an appropriate basis as events occur that justify special attention.

Level 2: Training

The purpose of Training is to ensure that all individuals have the skills required to perform their assignments.

Training involves identifying the skills required to perform critical tasks, identifying training needs within each unit, and ensuring that needed training is received.

Each unit identifies the skills required to perform critical tasks involved in the assignments given to individuals. Training needs are identified for each unit, and a plan is developed to ensure that needed training is received.

The goals of Training are:

1. Training in the critical skills required in each unit is provided.

2. Individuals receive timely training that is needed to perform their assignments.

3. Training opportunities are made available to all individuals.

The top-level activities performed for Training are:

1. Critical skills required for performing critical tasks are identified in each unit.

2. The training needs for each unit are identified.

3. Each unit develops and maintains a plan for satisfying its training needs.

4. Individuals and/or groups receive the training they need to perform their assigned tasks.

5. Relevant training opportunities are identified and made available to support each individual's development.

6. Training is tracked against the unit's training plan.

Level 2: Compensation

The purpose of Compensation is to provide each individual with remuneration and benefits based on their contribution and value to the organization.

Compensation includes developing a documented compensation strategy, developing a plan for administering compensation, and making periodic adjustments to compensation based on performance.

A compensation strategy is developed that states the organization's philosophy and methods for compensating individuals. This compensation strategy is periodically reviewed against business conditions and revised when necessary. The strategy covers all forms of compensation to individuals and the criteria by which compensation will be determined. A compensation plan is prepared periodically to guide the administration of the compensation strategy.

Those responsible for making compensation decisions are provided guidance in administering and discussing the compensation strategy and decisions. Compensation decisions are based on common criteria stated in the strategy. Adjustments are periodically made to compensation based on individual performance and other documented criteria such as skill development or promotion.

The goals of Compensation are:

1. Compensation strategies and activities are planned, executed, and communicated.

2. Compensation is equitable relative to skill qualifications and performance.

3. Adjustments in compensation are made periodically based on defined criteria.

The top-level activities performed for Compensation are:

1. A compensation strategy is developed.

2. The compensation strategy is periodically reviewed to determine whether it needs to be revised.

3. Where appropriate, individuals are involved in developing or revising components of the compensation strategy.

4. A compensation plan is prepared on a periodic basis for administering the compensation strategy.

5. The compensation strategy is communicated to the workforce.

6. Each individual's compensation package is determined through a documented procedure that is consistent with the organization's compensation policy, strategy, and plan.

7. Compensation activities are performed by responsible individuals in accordance with a documented procedure.

8. Decisions regarding an individual's compensation package are communicated to the individual.

9. Responsible individuals periodically review compensation packages for all those whose compensation they administer; and they take action on discrepancies from the organization's policy, strategy, or plan.

Level 3: Knowledge and Skills Analysis

The purpose of Knowledge and Skills Analysis is to identify the knowledge and skills required to perform core business processes so that they may be developed and used as a basis for workforce practices.

Knowledge and Skills Analysis involves identifying the business processes in which the organization must maintain competence, developing profiles of the knowledge and skills needed to perform these business functions, maintaining a knowledge and skills inventory, and identifying future knowledge and skill needs.

Business functions are evaluated to determine the core competencies the organization must maintain to sustain its business capability. Business processes constituting these functions are analyzed to identify the knowledge and skill profiles underlying each core competency. These profiles are periodically reassessed to ensure that they are current with the actual knowledge and skills required by the organization's business processes. The organization maintains an information base of these profiles. Anticipated changes in processes or technologies are analyzed to determine their implications for future knowledge and skill requirements.

The analysis of core competencies occurs at the organizational level and is of long-term concern to executive management and those responsible for coordinating workforce activities across the organization. Knowledge and skill profiles are used at the unit level in performing workforce activities described in the Staffing, Training, Performance Management, Competency Development, Competency-Based Practices, and other key process areas.

The goals of Knowledge and Skills Analysis are:

1. The core competencies required to perform the organization's business processes are known.

2. Knowledge and skills profiles exist for each business process.

3. Knowledge and skills profiles are updated for anticipated future needs.

The top-level activities performed for Knowledge and Skills Analysis are:

1. The core competencies that the organization must develop and maintain to perform its business functions are identified.

2. Profiles of the knowledge and skills underlying each of the organization's core competencies are developed.

3. An inventory of knowledge and skill profiles is maintained.

4. Knowledge and skills profiles are reevaluated on a periodic or event-driven basis.

5. Core competencies are reevaluated on a periodic and event-driven basis.

Level 3: Workforce Planning

The purpose of Workforce Planning is to coordinate workforce activities with current and future business needs at both the organizational and unit levels.

Workforce Planning involves developing a strategic workforce plan that sets organization-wide objectives for competency development and workforce activities, and developing near-term plans to guide the workforce activities of each unit.

The workforce planning process begins by identifying future competency and workforce needs of the organization. These needs are assessed from anticipated future developments in the business and its products, services, markets, work technologies, and business processes. A plan is created for the long-term development of each competency needed by the organization. A strategic workforce plan is created by integrating these competency development plans and determining how the needed competencies will be provided over time. This plan sets long-term objectives for workforce activities to meet documented workforce needs.

Near-term workforce plans are developed periodically at both the organizational and unit levels. These plans set specific near-term objectives for performing workforce activities that satisfy both long-term strategic workforce objectives and the current needs of the business and each unit. Succession plans are developed for each key position in the organization. Performance against these plans is periodically checked and reported at the appropriate level.

The goals of Workforce Planning are:

1. The organization develops a strategic plan for long-term development of the competencies and workforce needed for its business operations.

2. Near-term workforce and competency development activities are planned to satisfy both current and strategic workforce needs.

3. The organization develops talent for each of its key positions.

4. The organization tracks performance in achieving its strategic and near-term workforce development objectives.

The top-level activities performed for Workforce Planning are:

1. The strategic competency and workforce needs of the organization are documented.

2. For each of the organization's core competencies, a competency development plan is produced.

3. A strategic workforce plan is developed and periodically revised.

4. Near-term workforce plans are developed to guide workforce activities in each unit.

5. The organization develops succession plans for its key positions.

6. The organization's performance in meeting the objectives of its strategic and near-term workforce plans is tracked.

7. Each unit's performance in meeting the objectives of its near-term workforce plans is tracked.

Level 3: Competency Development

The purpose of Competency Development is to constantly enhance the capability of the workforce to perform their assigned tasks and responsibilities.

Competency Development involves establishing training and other development programs in each of the organization's core competencies.

The core competencies identified in Knowledge and Skills Analysis and Workforce Planning provide the foundation for the organization's development and training program. Development activities are designed to raise the level of knowledge and skill in the organization's current and anticipated core competencies. The organization maintains standards for the quality of the training and development activities offered its workforce. Each individual's development plan is updated with the individual's current level of knowledge and skill. Each individual sets objectives for development in one or more of the core competencies of the organization.

The goals of Competency Development are:

1. The organization knows its current capability in each of the core competencies required to perform its business processes.

2. The organization develops capabilities in its core competencies.

3. Individuals develop their knowledge and skills in the organization's core competencies.

The top-level activities performed for Competency Development are:

1. The competency development plans for each of the organization's core competencies form the basis for its competency development activities.

2. The organization tracks the knowledge and skills of its workforce in the organization's core competencies according to a documented procedure.

3. The organization establishes a program of training and development in its core competencies.

4. Individuals in each unit receive training and development as needed in appropriate core competencies.

5. The organization makes available to individuals information on the organization's core competencies and learning opportunities related to their development.

6. Individuals are actively involved in identifying and pursuing learning opportunities to enhance their capabilities in the organization's core competencies.

Level 3: Career Development

The purpose of Career Development is to ensure that all individuals are motivated and are provided opportunities to develop new skills that enhance their ability to achieve career objectives.

Career Development includes discussing career options with each individual, developing a personal development plan, tracking progress against it, identifying training opportunities, and making assignments that enhance career objectives.

A personal development plan is created and periodically updated for each individual. Progress against this plan is tracked and development opportunities are identified. Opportunities for training and other career-enhancing activities are made available. Individuals are encouraged to take an active role in defining and developing their skills and career development. A graduated set of career opportunities are defined along with criteria for promotion among them. Promotion activities are performed on a periodic and event-driven basis. Individuals are periodically counseled about career options, and opportunities for advancement are communicated to them. An effort is made to match work assignments with career objectives. The organization evaluates how well progress in meeting personal development plans is providing the skills that the organization anticipates it will need in the future.

The goals of Career Development are:

1. Career development activities are conducted with each individual.

2. The organization offers career opportunities that provide growth in its core competencies.

3. Individuals are motivated to pursue career goals that optimize the value of their knowledge and skills to the organization.

The top-level activities performed for Career Development are:

1. A personal development plan is created and maintained for each individual.

2. Individuals actively identify and pursue learning opportunities that enhance their career options and capabilities in the organization's core competencies.

3. The development activities of each individual are tracked against his or her personal development plan.

4. Trends across individual development plans and activities are periodically reviewed to determine whether organizational competency needs will be met.

5. Assignments outside of normal work responsibilities that support an individual's development needs are provided as appropriate.

6. The organization defines graduated career opportunities based on the core competencies required to perform its business.

7. Career development objectives are based on the graduated career opportunities defined in the organization.

8. Career promotions are made in each area of graduated career opportunities based on a documented procedure.

Level 3: Competency-Based Practices

The purpose of Competency-Based Practices is to ensure that all workforce practices are based in part on developing the knowledge and skills of the workforce.

Competency-Based Practices involve recruiting against knowledge and skill needs, basing selection methods on assessing the knowledge and skills of candidates, assessing job performance against the tasks and roles assigned to the position, and basing compensation at least in part on growth in knowledge and skills.

Both the organization and its units identify recruiting needs based in part on core competencies identified in Knowledge and Skills Analysis. The organization works with potential sources of qualified candidates to improve the relevant knowledge and skills of applicants. Selection methods are tailored to assess more carefully the knowledge and skills related to core competencies. Orientation is planned around the appropriate knowledge and skills both for the new position and for long-term development. Performance criteria are defined in relation both to current responsibilities and to long-term development in core competencies. Increases in compensation are partly based on growth in knowledge and skills. The compensation system is analyzed against the level of knowledge and skills identified in the organization in Competency Development. The organization works to focus its workforce practices on developing the capability of its workforce in relation to the organization's core competencies.

The goals of Competency-Based Practices are:

1. Workforce practices are tailored to motivate individuals and groups to improve their knowledge and skills in the core competencies of the organization.

2. Workforce activities are adjusted to support development in the core competencies of the organization.

3. Compensation and reward strategies are tailored to motivate growth in the core competencies of the organization.

The top-level activities performed for Competency-Based Practices are:

1. Recruiting activities are planned and executed to satisfy the organization's requirements for core competencies.

2. Staffing decisions are based in part on developing careers through an appropriate set of graduated career opportunities.

3. The organization selects the most qualified candidates based in part on their long-term potential for growth and performance in the organization's core competencies.

4. Work assignments are designed, in part, to enhance personal and career development objectives.

5. Each unit's performance criteria include objectives for developing the core competencies required to perform its business activities.

6. The documented performance criteria for each individual include objectives for developing additional capability in the organization's core competencies.

7. The results of each individual's job performance are assessed in part against evidence of developing capability in the organization's core competencies.

8. The compensation system is designed in part to improve the relationship between workforce capability in the organization's core competencies and organizational performance.

9. Adjustments to each individual's compensation are partly designed to motivate development in the organization's core competencies and use these skills to improve performance at the individual, group, unit, and/or organizational levels.

10. Recognition and rewards for growth in the organization's core competencies are provided when appropriate at the individual, group, unit, and organizational levels.

11. As core competencies change, the organization reevaluates its workforce policies and practices, and adjusts them as needed.

Level 3: Participatory Culture

The purpose of a Participatory Culture is to ensure a flow of information within the organization, to incorporate the knowledge of individuals into decision-making processes, and to gain their support for commitments. Establishing a participatory culture lays the foundation for building high-performance teams.

Participatory Culture involves establishing effective communications among all levels of the organization, seeking input from individuals, involving individuals in making decisions and commitments, and communicating decisions to them.

Participatory Culture begins with establishing effective communication within workgroups and across the organization. Improving communication involves identifying needed information and developing ways to share it. Participation in decision making is established as an important workforce value of the organization. Decision making processes are shifted down to lower levels of the organization where appropriate. Decision making processes are defined or adopted that are appropriate for different types of decisions. Individuals are asked for input on decisions where appropriate. They are involved in making and signing off on commitments and in making decisions about their work. Management communicates about events and decisions that affect the workforce.

The goals of Participatory Culture are:

1. Communication activities are enhanced to improve the flow of information within the organization.

2. Decisions are made at the lowest appropriate level of the organization.

3. Individuals and groups participate in decision-making processes that involve their work or commitments.

The top-level activities performed for Participatory Culture are:

1. Individuals identify the information they need to perform their assigned responsibilities.

2. Individuals work with each other to develop effective means of communicating information.

3. Those assigned management or supervisory responsibility for a body of work maintain an ongoing involvement those performing the work.

4. Executive management initiates an effort to shift decision making down to appropriate levels of the organization.

5. Decision-making processes and roles are identified for different types of decisions.

6. Decisions made by those empowered to make them are supported by others in the organization.

7. Individuals and groups are involved in making decisions that affect their work.

8. Individuals and groups participate in making commitments that they are responsible for meeting.

9. Individuals and groups participate in shaping their work environments.

Level 4: Mentoring

The purpose of Mentoring is to use the experience of the organization's workforce to provide personal support and guidance to other individuals or groups. This guidance can involve developing knowledge and skills, improving performance, handling difficult situations, and making career decisions.

Mentoring involves setting objectives for a mentoring program, designing mentoring activities to achieve these objectives, selecting and training appropriate mentors, assigning mentors to individuals or groups, establishing mentoring relationships, and evaluating the effectiveness of the program.

The organization develops one or more sets of objectives for the mentoring program. Appropriate types of mentoring relationships are designed for different mentoring objectives within the program. Criteria are developed for selecting mentors and those chosen are trained for their assignments. Individuals or groups being mentored are provided orientation on how they can best take advantage of a mentoring relationship. Criteria are developed for assigning mentors to individuals or groups. The mentor and the individual or group being mentored establish agreements on how their relationship will be conducted. Mentors meet periodically and occasionally evaluate whether they are achieving their objectives. Advice is available to improve the effectiveness of the mentoring relationship. The mentoring program is evaluated against its objectives to identify needed improvements.

The goals of Mentoring are:

1. Mentoring activities are matched to defined objectives.

2. Mentors are selected and prepared for their responsibilities.

3. Mentors are made available for guidance and support to other individuals or groups.

The top-level activities performed for Mentoring are:

1. The objectives and structure of the mentoring program are defined.

2. The mentoring program is communicated to all affected individuals or groups.

3. Individuals and/or groups are invited to participate in the mentoring program.

4. Mentors are selected and prepared for their assignments.

5. Mentors are assigned to individuals or groups.

6. Mentors and individuals or groups to be mentored establish a mentoring relationship.

7. Guidance is made available to mentors and individuals or groups on how to improve their mentoring relationship.

8. The mentoring relationship is periodically reviewed to ensure that the relationship is satisfying its intended objectives.

9. Corrective action is taken to resolve problems with mentoring relationships.

10. Mentors are recognized for successful mentoring activities.

Level 4: Team Building

The purpose of Team Building is to capitalize on opportunities to create teams that maximize the integration of diverse knowledge and skills to perform business functions.

Team Building involves matching potential team members to the knowledge and skill requirements of the team, training all new members in team skills, defining objectives for team performance, tailoring standard processes for use by the team, defining performance criteria, and periodically reviewing team performance.

Opportunities to form teams are identified within the organization's or unit's work process. The organization or unit identifies the knowledge and skills required for the team. Team members are selected to provide a mix of complementary knowledge and skills that satisfy the requirements of the various tasks and roles involved in the team's work. Where appropriate, this will involve a mix of the core competencies of the organization. Team members are trained in team skills, some of which are identified as core competencies of the organization. Objectives are established for team performance. The team adopts and tailors for its use any standard team or relevant work processes defined for use by the organization. The team defines processes as necessary to perform its assigned responsibilities and a set of performance criteria that are approved by management. The team assesses its own performance and periodically reports results.

The goals of Team Building are:

1. Teams are formed to improve the performance of interdependent tasks.

2. Team assignments are made to integrate complementary knowledge and skills.

3. Team members develop their team skills.

4. Team members participate in decisions regarding their work.

5. The organization provides standard processes for tailoring and use by teams in performing their work.

The top-level activities performed for Team Building are:

1. Team-building activities are planned in the organization's and unit's strategic and near-term workforce plans.

2. The organization designs and maintains an approved set of team structures and processes for application in appropriate situations.

3. Appropriate opportunities for forming teams within a unit's or the organization's business functions are identified.

4. Work processes and conditions are organized to support team building.

5. An appropriate team structure is selected for application in each situation where a team will be initiated.

6. The knowledge and skills required to perform the team's work process are identified.

7. Team members are selected and assigned to the team based in part on the degree to which their knowledge and skills fill team needs and complement those of other team members.

8. Team members receive the training needed to overcome shortfalls in team knowledge and skills.

9. The individual(s) or entity to whom the team is accountable provides assigned responsibilities and business objectives to the team.

10. Teams receive facilitation as needed during their initiation or operation.

11. Teams tailor standard team processes for use in performing their work processes.

12. Teams plan their work and commitments.

13. Teams define appropriate measures of their work products and processes.

14. Teams establish working relationships with other teams, groups, or units that are necessary to execute their work responsibilities.

Level 4: Team-Based Practices

The purpose of Team-Based Practices is to tailor the organization's workforce practices to support the development, motivation, and functioning of teams.

Team-Based Practices involve ensuring that the work environment supports team functions, setting and reviewing team performance criteria, involving team members in performing workforce activities, and reflecting team criteria in individual compensation decisions.

Team-Based Practices begin with shaping the work environment to foster team-based activities. Objective performance criteria are established for the team. The individuals or groups to which the team is accountable maintain ongoing communication about performance with the team. Team members are involved in the performance of team-based practices such as team recruiting, selection, performance management, reward, training, development, and compensation activities as appropriate based on the structure and function of the team. Team data is used to identify needs for team development. Team-based criteria are factored into compensation decisions. Rewards are provided based in part on team criteria.

The goals of Team-Based Practices are:

1. The organization adjusts its workforce practices and activities to motivate and support the development of team-based competencies within the organization.

2. Workforce activities are tailored to support the needs of different types of teams within the organization.

3. Team performance criteria are defined and measured.

4. Compensation and reward systems are tailored to motivate improved team performance.

The top-level activities performed for Team-Based Practices are:

1. The organization's work environment is tailored to enhance its team activities.

2. The organization's standard workforce practices are adjusted for use with teams.

3. When appropriate, team members are involved in tailoring and performing workforce activities for their team.

4. Individual(s) or entities to which the team is accountable maintain ongoing communication with the team about its performance.

5. Objective performance criteria are established and revised for each team.

6. Team performance is evaluated on a periodic and event-driven basis.

7. Rewards and recognition based on team performance and individual contributions to team activities are provided, when appropriate, at the individual and team levels.

8. Team development activities are planned in the organization's and each unit's near-term workforce plans.

9. Continuous team development is based on analyses of the team's performance.

10. The compensation system is designed, in part, to reward the team members for the team's performance and its contribution to enhancing the organization's performance.

11. Each individual's contribution to team performance is factored into his or her compensation decision.

Level 4: Organizational Competency Management

The purpose of Organizational Competency Management is to increase the capability of the organization in its core competencies and to determine the effectiveness of its competency development activities in achieving specific competency growth goals.

Organizational Competency Management involves setting measurable goals for growth in the organization's core competencies, defining and collecting data relevant to them, analyzing the impact of competency development activities on achieving these goals, and using the results to guide the application and improvement of competency development activities.

Plans and improvement goals are periodically established for the organization's capability in each of its core competencies. The organization establishes its capability and trends relative to its goals in each of its core competencies quantitatively. Data are defined and collected, and trends are analyzed. When needed, the organization takes corrective actions to bring competency trends under managed control. The organization quantitatively determines the impact that its competency development activities have on its capability in its core competencies. Feedback on the organization's capability relative to its core competencies is reported on a regular basis. Corrective action is taken whenever necessary to ensure appropriate progress against the organization's capability goals or to improve the performance of its competency development activities.

The goals of Organizational Competency Management are:

1. Measurable goals for capability in each of the organization's core competencies are defined.

2. Progress toward achieving capability goals in the organization's core competencies is quantified and managed.

3. The knowledge and skills-building capability of the organization's competency development activities is known quantitatively for each of its core competencies.

The top-level activities performed for Organizational Competency Management are:

1. Organizational competency management activities are planned.

2. Measurable objectives are established for developing the organization's capability in each of its core competencies.

3. The organization develops a data collection, analysis, and reporting strategy for each of its core competencies.

4. Trends in the organization's capability in each of its core competencies are compared quantitatively to its competency development goals.

5. The organization quantitatively determines the capability of its competency development activities to achieve the goals for developing each core competency.

6. When the organization's capability in one of its core competencies differs significantly from goals, action is taken to improve the capability.

Level 4: Organizational Performance Alignment

The purpose of Organizational Performance Alignment is to enhance alignment of performance results at the individual, team, unit, and organizational levels with the appropriate goals and to quantitatively assess the effectiveness of workforce practices on achieving alignment.

Organizational Performance Alignment involves setting measurable goals for aligning performance at the individual, team, unit, and organizational levels, defining the data and analyses, collecting the data, analyzing trends against objectives, acting on exceptional findings, analyzing the impact of workforce practices on performance alignment, and reporting results.

Objectives are periodically established for aligning performance results across the individual, team, unit, and organizational levels. Both the performance data to be collected and the analyses to be performed are defined. Data are collected, and trends are analyzed and compared to alignment goals. Where performance is misaligned, corrective actions are taken and/or goals are adjusted, if necessary. Trends in workforce practices and improved capability in the organization's core competencies are analyzed to determine their impact on the alignment of performance results. Feedback on performance alignment is reported to the organization. Management takes action when necessary to ensure progress against performance alignment goals.

The goals of Organizational Performance Alignment are:

1. Measurable goals for aligning individual, team, unit, and organizational performance are defined.

2. Progress toward achieving performance alignment goals is quantified and managed.

3. The capability of workforce activities to align individual, team, unit, and organizational performance is known quantitatively.

The top-level activities performed for Organizational Performance Alignment are:

1. Performance alignment activities are planned.

2. Measurable goals are established for aligning performance at the individual, team, unit, and organizational levels.

3. The organization develops a data collection, analysis, and reporting strategy for its performance alignment activities.

4. Objective data on performance at the individual, team, unit, and organizational levels are defined, collected, and analyzed for trends in performance alignment.

5. The capability of the organization's performance-related workforce activities for aligning performance is established quantitatively.

6. When performance alignment at the team, unit, or organizational levels differs significantly from goals, actions are taken to improve the alignment.

Level 5: Personal Competency Development

The purpose of Personal Competency Development is to provide a foundation for professional self development.

Personal Competency Development consists of a voluntary program for continuously improving individual work processes. This program involves developing goals and plans for personal work activities, establishing and using defined personal processes, measuring and analyzing the effectiveness of these personal processes, and implementing improvements to them.

The organization establishes a voluntary program to support individual initiative in continuously improving personal work processes. Individuals define their work processes and use these defined processes to plan their work. Individuals measure their work processes and set measurable goals for improving their performance. Individuals analyze their work processes to identify opportunities for improvement and they identify the knowledge and skills needed to make these improvements. Individuals improve their work processes and eliminate the causes of defects in their work.

The organization adjusts the application of workforce practices to support personal competency development. Improvements in individual work processes are recognized.

The goals of Personal Competency Development are:

1. Individuals know their capability in each of the competencies involved in their work.

2. Individuals continuously improve their knowledge and skills in the competencies involved in their work.

3. Participation in improving personal competencies is organization-wide.

The top-level activities performed for Personal Competency Development are:

1. A program for personal competency development is established that empowers individuals to continuously improve their individual work processes.

2. Individuals define the processes they use to perform their work.

3. Where appropriate, individuals plan their activities using defined individual work processes and historical individual performance data.

4. Individuals measure the performance of their individual work processes.

5. Individuals establish measurable personal goals for continuous improvements in their work processes.

6. Individuals analyze the measured performance of their work processes to identify opportunities for improvement.

7. Individuals identify the knowledge and skills they need to improve their work processes.

8. Individuals continuously improve their work processes.

9. Individuals take corrective action as needed to correct defects and eliminate the causes of defects in their work.

10. The application of the organization's workforce practices is adjusted as needed to accommodate improvements in individual work processes.

11. Records of activities for continuously improving individual work processes are maintained.

12. The accomplishments of individuals in continuously improving their work processes are recognized.

Level 5: Coaching

The purpose of Coaching is to provide expert assistance to enhance the performance of individuals or teams. Coaches engage in close relationships with individuals or teams to guide development of skills that improve performance.

Coaching involves selecting appropriate coaches, analyzing data on personal or team performance, providing guidance on methods for improving performance, and evaluating progress toward goals for improving performance.

Coaching opportunities are pursued where coaching can provide a justifiable improvement to individual or team performance. Criteria are developed for selecting coaches. Coaches are trained in coaching skills and are assigned to an individual or team according to their expertise. Individuals or teams are provided orientation on how to best use a coach to improve performance. Coaches use data on individual or team performance to analyze skills, and they help individuals or teams set measurable goals for improving skills and performance. Coaches also track performance continuously and provide specific guidance on improving skills and performance. Individuals or teams practice the skills they are working on with the coach. Coaches provide or make inputs to appropriate rewards for improvement. Coaching activities are evaluated and improvements are made.

The goals of Coaching are:

1. Coaches are selected for their expertise and prepared for their responsibilities.

2. Coaches work with individuals to improve their personal competency and performance.

3. Coaches work with teams to improve their team-based competencies and performance.

The top-level activities performed for Coaching are:

1. Coaching is established in situations that are judged to offer sufficient performance benefits.

2. Coaches are selected and prepared for their assignments.

3. Coaches are assigned to individuals or teams according to defined criteria.

4. Coaches and the individuals or teams being coached establish a coaching relationship.

5. Coaches and the individuals or teams being coached set measurable goals for improving performance.

6. Coaches monitor individual or team performance.

7. Coaches guide improvements in the skills of individuals and/or teams.

8. Individuals and/or teams practice the skills that they are working to improve.

9. Coaches reward improved performance by individuals or teams.

10. Coaches and individuals are provided guidance on how to improve their coaching relationship.

11. Actions are taken to improve coaching relationships.

12. Coaches are recognized for successful coaching.

Level 5: Continuous Workforce Innovation

The purpose of Continuous Workforce Innovation is to identify and evaluate improved workforce practices and technologies, and implement the most promising ones throughout the organization.

Continuous Workforce Innovation involves establishing a mechanism for proposing improvements in workforce activities, identifying needs for new practices, surveying and evaluating innovative practices and technologies, conducting exploratory trials of new practices and technologies, and implementing the most beneficial ones across the organization.

Innovative workforce practices and technologies include new channels for recruiting, new selection techniques, innovative ways to manage performance, innovative technologies for communication, creative compensation schemes, introducing new media and methods for developing knowledge and skills, alternative career choices, and new ways of organizing and empowering the workforce.

Effort toward implementing innovative workforce practices is included in the strategic and near-term workforce plans. The group assigned responsibility for coordinating continuous workforce innovation stays aware of the current effectiveness of the organization's workforce activities. A procedure for proposing improvements to workforce activities is developed and communicated to the workforce. The coordinating group continually reviews internal proposals and external developments in workforce practices and technology to determine which innovations offer the greatest opportunity to improve the competency and performance of the organization. The most promising innovations are tried and, if successful, they are implemented across the organization. The effectiveness of these improved practices is evaluated quantitatively and the results are communicated to the workforce.

The goals of Continuous Workforce Innovation are:

1. Innovative workforce practices and technologies are evaluated to determine their effect on improving core competencies and performance.

2. The organization's workforce practices and activities are improved continuously.

3. Participation in improving the organization's workforce practices and activities is organization-wide.

The top-level activities performed for Continuous Workforce Innovation are:

1. Activities for continuous workforce innovation are planned.

2. Individuals and teams are empowered to continuously improve their performance of workforce activities.

3. A continuous improvement program is established that encourages individuals and teams to propose improvements to workforce practices and activities.

4. The organization establishes a program for evaluating innovative workforce practices and technologies.

5. Innovative workforce practices and technologies are identified and selected for evaluation.

6. Trial efforts for evaluating innovative workforce practices or technologies are conducted, where appropriate, before these innovations are introduced into normal use.

7. Innovative workforce practices or technologies that demonstrate their effectiveness in trial efforts are disseminated throughout the organization.

8. Data on the activities for continuous workforce innovation are collected and maintained.

Appendix D: Mapping of Key Practices to Goals

The tables below show the key practices of each key process area mapped to the goals of the key process area.

Level 2 KPAs	Goals	Activities Performed	Commit-ment	Ability	Measure-ment	Verifica-tion
Work Environment	1	1, 2, 4, 5	1, 2	1, 2, 3, 4	1	1, 2
	2	3, 4, 5	1, 2	1, 2, 4	1	1, 2
	3	4, 6, 7, 8	1, 2	1, 2	1	1, 2
Communication	1	1, 2, 4, 5, 6, 9	1, 2, 3	1, 2, 3	1	1, 2
	2	1, 2	1, 2, 3	1, 2, 3	1	1, 2
	3	3, 4	2, 3	1, 2, 3	1	1, 2
	4	5, 7, 8	2, 3	1, 2, 3	1	1, 2
Staffing	1	1, 2, 3, 4, 5	1, 2	1, 2, 3, 4	1, 2	1, 2
	2	1, 5, 6, 7, 8, 11	1, 2	1, 2, 3, 4	1, 2	1, 2
	3	1, 9, 11	1, 2	1, 2, 3, 4	1, 2	1, 2
	4	1, 10	1, 2	1, 2, 3, 4	1, 2	1, 2

Table A.1   Level 2 KPAs: Key Practices Mapped to Goals

Level 2 KPAs	Goals	Activities Performed	Commit-ment	Ability	Measure-ment	Verifica-tion
Performance Management	1	1, 2, 3, 4, 5	1, 2	1, 2, 3, 4	1, 2	1, 2
	2	4, 5, 6, 7, 8, 9, 10	1, 2	1, 2, 3, 4	1, 2	1, 2
	3	6, 14	1, 2	1, 2, 3, 4	1, 2	1, 2
	4	11, 12, 13	1, 2	1, 2, 3, 4	1, 2	1, 2
	5	15	1, 2	1, 2, 3, 4, 5, 6	1, 2	1, 2
Training	1	1, 2, 3, 4, 6	1, 2	1, 2, 3, 4, 5	1, 2	1, 2
	2	1, 4	1, 2	1, 2, 3, 4, 5	1, 2	1, 2
	3	4, 5	1, 2	1, 2, 3, 4, 5	1, 2	1, 2
Compensation	1	1, 2, 3, 4, 5, 6, 7, 8, 9	1, 2	1, 2, 3	1, 2	1, 2
	2	6, 9	1, 2	1, 2, 3	1, 2	1, 2
	3	6, 7, 9	1, 2	1, 2, 3	1, 2	1, 2

Table A.1   Level 2 KPAs: Key Practices Mapped to Goals (continued)

Level 3 KPAs	Goals	Activities Performed	Commit-ment	Ability	Measure-ment	Verifica-tion
Knowledge and Skills Analysis	1	1	1, 2	1, 2, 3, 4	1, 2	1, 2, 3
	2	2, 3, 4	1, 2	1, 2, 3, 4	1, 2	1, 2, 3
	3	4, 5	1, 2	1, 2, 3, 4	1, 2	1, 2, 3
Workforce Planning	1	1, 2, 3	1, 2	1, 2, 3, 4, 5	1, 2	1, 2
	2	2, 4, 5	1, 2	1, 2, 3, 4, 5	1, 2	1, 2
	3	4, 5	1, 2	1, 4, 5	1, 2	1, 2
	4	6, 7	1, 2	1, 4, 5	1, 2	1, 2
Competency Development	1	1, 2	1, 2	1, 2, 3, 4, 5	1, 2	1, 2, 3
	2	1, 3, 4, 5, 6	1, 2	1, 2, 3, 4, 5	1, 2	1, 2, 3
	3	4, 5, 6	1, 2	1, 2, 3, 5	1, 2	1, 2, 3
Career Development	1	1, 2, 3, 5, 7	1, 2	1, 2, 3, 4	1, 2	1, 2
	2	4, 5, 6, 8	1, 2	1, 2, 3, 4	1, 2	1, 2
	3	1, 2, 4, 8	1, 2	1, 2, 3, 4	1, 2	1, 2
Competency-Based Practices	1	2, 3, 6, 7	1, 2	1, 2, 3, 4, 5	1, 2	1, 2
	2	1, 2, 3, 4, 5, 6, 7, 11	1, 2	1, 2, 3, 4, 5	1, 2	1, 2
	3	8, 9, 10	1, 2	1, 2, 3, 4, 5	1, 2	1, 2
Participatory Culture	1	1, 2, 3	1, 2, 3	1, 2, 3	1, 2	1, 2
	2	4, 5, 6	1, 2, 3	1, 2, 3	1, 2	1, 2
	3	5, 7, 8, 9	1, 2, 3	1, 2, 3	1, 2	1, 2

Table A.2   Level 3 KPAs: Key Practices Mapped to Goals

Level 4 KPAs	Goals	Activities Performed	Commit-ment	Ability	Measure-ment	Verifica-tion
Mentoring	1	1, 8	1, 2	1, 2, 3, 4	1, 2	1, 2
	2	2, 3, 4, 7, 10	1, 2	1, 2, 3	1, 2	1, 2
	3	2, 3, 5, 6, 8, 9, 10	1, 2	1, 2, 4	1, 2	1, 2
Team Building	1	1, 3, 4, 9	1, 2	1, 2, 3, 5	1, 2	1, 2
	2	6, 7	1, 2	1, 2, 3, 5	1, 2	1, 2
	3	8, 10	1, 2	1, 2, 3, 4, 5	1, 2	1, 2
	4	11, 12, 13, 14	1, 2	1, 2, 3, 4, 5	1, 2	1, 2
	5	2, 5, 11	1, 2	1, 2, 3, 4, 5	1, 2	1, 2
Team-Based Practices	1	1, 2, 7, 8, 10, 11	1, 2	1, 2, 3, 4	1, 2	1, 2
	2	2, 3, 9	1, 2	1, 2, 3, 4	1, 2	1, 2
	3	3, 4, 5, 6, 9	1, 2	1, 2, 3, 4	1, 2	1, 2
	4	7, 10, 11	1, 2	1, 2, 3, 4	1, 2	1, 2
Organizational Competency Management	1	1, 2	1, 2, 3	1, 2, 3, 4	1, 2	1, 2, 3
	2	3, 4, 6	1, 2, 3	1, 2, 3, 4	1, 2	1, 2, 3
	3	5	1, 2, 3	1, 2, 3, 4	1, 2	1, 2, 3
Organizational Performance Alignment	1	1, 2	1, 2	1, 2, 3, 4, 5	1, 2	1, 2, 3
	2	3, 4, 6	1, 2	1, 2, 3, 4, 5	1, 2	1, 2, 3
	3	5	1, 2	1, 2, 3, 4, 5	1, 2	1, 2, 3

Table A.3   Level 4 KPAs: Key Practices Mapped to Goals

Level 5 KPAs	Goals	Activities Performed	Commit-ment	Ability	Measure-ment	Verifica-tion
Personal Competency Development	1	1, 2, 3, 4	1, 2	1, 2	1, 2	1, 2
	2	1, 5, 6, 7, 8, 9	1, 2	1, 2	1, 2	1, 2
	3	1, 10, 11, 12	1, 2	1, 2	1, 2	1, 2
Coaching	1	2, 3, 10, 11, 12	1, 2	1, 2, 3, 4	1, 2	1, 2
	2	1, 4, 5, 6, 7, 8, 9, 11,12	1, 2	1, 2, 3, 5	1, 2	1, 2
	3	1, 4, 5, 6, 7, 8, 9, 11, 12	1, 2	1, 2, 3, 5	1, 2	1, 2
Continuous Workforce Innovation	1	1, 2, 3, 4, 5, 6, 8	1, 2	1, 2, 3, 4	1, 2	1, 2
	2	1, 2, 7, 8	1, 2	1, 2, 3, 4, 5	1, 2	1, 2
	3	1, 2, 3, 7, 8	1, 2	1, 2, 3, 4, 5	1, 2	1, 2

Table A.4   Level 5 KPAs: Key Practices Mapped to Goals

People Capability Maturity Model ▪

Appendix E: Change History

Date	Version	Change Description
August 1990	0.0	Conceptual model published [Curtis90].
October 1993	0.1	Version for review by Advisory Board.
November 1994	0.2	Draft for public review. Version 0.2 distributed to the P-CMM Correspondence Group for review and comments.
April 1995	0.3	Draft for public review. Version 0.3 distributed to the P-CMM Correspondence Group for review and comments.
September 1995	1.0	Baseline version for public release.

Table A.5   P-CMM Change History

Change Request – People Capability Maturity Model

Product: P-CMM v1.0   SEI Assigned Tracking Number: _____

Name of Submitting Organization: _____

Organization Contact: _____ Telephone: _____

Mailing Address:

Date: _____ Short Title: _____

Change Location Tag: _____
(use section #, figure #, key process area ID, practice ID, etc.)

Proposed Change:

Rationale for Change:

Note: For the SEI to take appropriate action on a change request, we must have a clear description of the recommended change, along with a supporting rationale.

Send US mail to: P-CMM Change Requests, Software Process Program, Software Engineering Institute, Carnegie Mellon University, Pittsburgh, PA 15213-3890.

Send packages to: P-CMM Change Requests, Software Process Program, Software Engineering Institute, Carnegie Mellon University, 4500 Fifth Avenue, Pittsburgh, PA 15213-2691.

Send via Internet to: p-cmm-change@sei.cmu.edu

REPORT DOCUMENTATION PAGE

1a. REPORT SECURITY CLASSIFICATION Unclassified	1b. RESTRICTIVE MARKINGS None

2a. SECURITY CLASSIFICATION AUTHORITY N/A	3. DISTRIBUTION/AVAILABILITY OF REPORT Approved for Public Release Distribution Unlimited
2b. DECLASSIFICATION/DOWNGRADING SCHEDULE N/A	

4. PERFORMING ORGANIZATION REPORT NUMBER(S) CMU/SEI-95-MM-02	5. MONITORING ORGANIZATION REPORT NUMBER(S)

6a. NAME OF PERFORMING ORGANIZATION Software Engineering Institute	6b. OFFICE SYMBOL (if applicable) SEI	7a. NAME OF MONITORING ORGANIZATION SEI Joint Program Office

6c. ADDRESS (city, state, and zip code) Carnegie Mellon University Pittsburgh PA 15213	7b. ADDRESS (city, state, and zip code) HQ ESC/ENS 5 Eglin Street Hanscom AFB, MA 01731-2116

8a. NAME OFFUNDING/SPONSORING ORGANIZATION SEI Joint Program Office	8b. OFFICE SYMBOL (if applicable) ESC/ENS	9. PROCUREMENT INSTRUMENT IDENTIFICATION NUMBER F19628-95-C-0003

8c. ADDRESS (city, state, and zip code)) Carnegie Mellon University Pittsburgh PA 15213	10. SOURCE OF FUNDING NOS.			
	PROGRAM ELEMENT NO 63756E	PROJECT NO. N/A	TASK NO N/A	WORK UNIT NO. N/A

11. TITLE (Include Security Classification) People Capability Maturity Model

12. PERSONAL AUTHOR(S) Bill Curtis, William Hefley, Sally Miller

13a. TYPE OF REPORT Final	13b. TIME COVERED FROM TO	14. DATE OF REPORT (year, month, day) September 1995	15. PAGE COUNT 425

16. SUPPLEMENTARY NOTATION

17. COSATI CODES			18. SUBJECT TERMS (continue on reverse of necessary and identify by block number)	
FIELD	GROUP	SUB. GR.	personnel development	team building
			employee involvement	human resources management
			participative management	organizational development

19. ABSTRACT (continue on reverse if necessary and identify by block number)

The People Capability Maturity Model(sm) (P-CMM[sm]) adapts the maturity framework of the Capability Maturity Model(sm) for Software (CMM[sm]) [Paulk 95] to managing and developing an organization's workforce. The motivation for the P-CMM is to radically improve the ability of software organizations to attract, develop, motivate, organize, and retain the talent needed to continuously improve software development capability. The P-CMM is designed to allow software organizations to integrate workforce improvement with software process improvement programs guided by the CMM. The P-CMM can also be used by any kind of organization as a guide for improving its people-related

(please turn over)

20. DISTRIBUTION/AVAILABILITY OF ABSTRACT UNCLASSIFIED/UNLIMITED ■ SAME AS RPT □ DTIC USERS ■	21. ABSTRACT SECURITY CLASSIFICATION Unclassified, Unlimited Distribution

22a. NAME OF RESPONSIBLE INDIVIDUAL Thomas R. Miller, Lt Col, USAF	22b. TELEPHONE NUMBER (include area code) (412) 268-7631	22c. OFFICE SYMBOL ESC/ENS (SEI)

ABSTRACT — continued from page one, block 19

and workforce practices.

Based on the best current practices in fields such as human resources and organizational development, the P-CMM provides organizations with guidance on how to gain control of their processes for managing and developing their workforce. The P-CMM helps organizations to characterize the maturity of their workforce practices, guide a program of continuous workforce development, set priorities for immediate actions, integrate workforce development with process improvement, and establish a culture of software engineering excellence. It describes an evolutionary improvement path from ad hoc, inconsistently performed practices, to a mature, disciplined development of the knowledge, skills, and motivation of the workforce, just as the CMM describes an evolutionary improvement path for the software processes within an organization.

The P-CMM consists of five maturity levels that lay successive foundations for continuously improving talent, developing effective teams, and successfully managing the people assets of the organization. Each maturity level is a well-defined evolutionary plateau that institutionalizes a level of capability for developing the talent within the organization. The key process areas at Level 2 focus on instilling basic discipline into workforce activities. They are Work Environment, Communication, Staffing, Performance Management, Training, and Compensation. The key process areas at Level 3 address issues surrounding the identification of the organization's primary competencies and aligning its people management activities with them. They are Knowledge and Skills Analysis, Workforce Planning, Competency Development, Career Development, Competency-Based Practices, and Participatory Culture. The key process areas at Level 4 focus on quantitatively managing organizational growth in people management capabilities and in establishing competency-based teams. They are Mentoring, Team Building, Team-Based Practices, Organizational Competency Management, and Organizational Performance Alignment. The key process areas at Level 5 cover the issues that address continuous improvement of methods for developing competency, at both the organizational and the individual level. They are Personal Competency Development, Coaching, and Continuous Workforce Innovation.

This document describes the P-CMM, the key practices that correspond to each maturity level of the P-CMM, and information on how to apply the P-CMM in guiding organizational improvement. It contains an elaboration of what is meant by workforce capability (i.e., maturity) at each maturity level, and describes how the P-CMM can be applied by an organization in two primary ways: as a standard for assessing workforce practices, and as a guide in planning and implementing improvement activities.